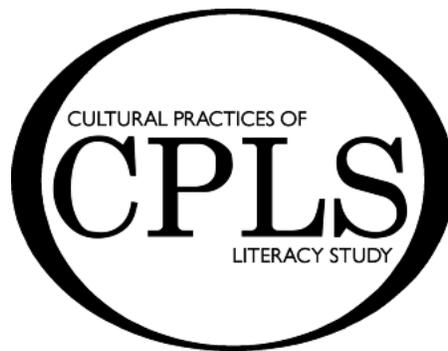


**Digital Literac(ies), Digital Discourses, and Communities of  
Practice:  
Literacy Practices in Virtual Environments**

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The first thing you notice about the classroom is its aural texture—not quite silent, but very quiet—just a staccato, percussive clicking of fingers on keyboards rapidly typing, then pausing in a cyclic rhythm, repeated around the room; the quiet hum of the computer fans complements the buzz of the fluorescent lights. Here and there a sigh, or a gasp, or a giggle escapes from the otherwise intently typing students. Despite the quiet, a discussion is nonetheless taking place: it is, in fact, a virtual cacophony of voices all speaking at once—holding multiple conversations, firing questions at one another, dropping and picking up discussion threads as they weave the classroom discussion on-screen.

The students in question are taking part in an upper-level writing course titled “Writing and Technology,” taught at a mid-sized public university on the east coast of the United States. The class is primarily made up of white, middle-class women and men who are in their junior or senior year of their undergraduate careers; 90% of the twenty students are white, 20% are male. The class meets on Tuesday and Thursday mornings in the sole computer classroom in the department, in which the computers are arranged around the perimeter of the room, facing the walls. There are several tables in the center of the room that students can gather around when not working at their terminals. Because the course is project-based, much of the class time is devoted to working in groups with the technologies available in the classroom, rather than the more traditional lecture and discussion formats common in humanities courses.

The goals of this course, as stated in the syllabus, are equally concerned with practices of writing with new technologies and efforts to understand and critically reflect upon how these new technologies transform writing:

This course is designed to teach students to

- develop strategies for learning and using a variety of technologies to compose print and online texts
- learn to analyze writing situations and select the best technologies for each project, audience, and subject
- critically analyze the effects that various technologies have on our definitions and conceptions of writing
- understand some of the theoretical commentary surrounding the intersections of writing and technologies in education, workplaces, and communities
- work with others to improve your writing and produce texts and presentations
- explore issues of technological literacy and examine how definitions of technological literacy affect you and others in your communities
- understand the ethical considerations involved in selecting and changing technologies for producing and distributing texts

My primary observations of this course focused on one of the class projects: the remediation of a traditional essay into a virtual exhibit in a MOO (a multi-user virtual environment). I was particularly interested in the way the MOO as a virtual space embodied the multimodal design model proposed by the New London Group in their seminal 1996 article, “A Pedagogy of Multiliteracies: Designing Social Futures.” The virtual environment of the MOO incorporates all of the design modes identified by the New London Group: linguistic, visual, audio, gestural, and spatial; because of the interconnectedness of these modes, the MOO itself can be described as multimodal. Additionally, the MOO project itself also exemplified the four-element pedagogy espoused by the New London group, as students engaged in situated practice,

overt instruction, critical framing, and transformed practice. In short, the course serves as an excellent model of a multi-literacies pedagogy, precisely because of the new media spaces made possible by new information and communication technologies.

These new technologies also served an important role in my methodology for this case study. Because my informants were working in a university setting far from my own, I had only a few opportunities for direct observation of the classroom; however, I had a great deal of access to the coursework produced by the students and I was able to observe their virtual class meetings and interact with them via both synchronous discussion (in the MOO) and asynchronous semi-structured interviews (by email).

In the past, I have taught in very similar locations and found myself struggling to effectively teach both writing and digital literacy practices. This struggle was, at the time, both curricular (as neither my pedagogy nor the technologies to support it were fully developed at that time) and political (as departmental administrators were then unconvinced that technology should be a part of any humanities-oriented course); I was excited to find a course that had clearly overcome both of these obstacles. And although digital literacy is a specifically stated goal of the course, the professor teaching the course did not develop it as a vehicle for literacy instruction (digital or otherwise): it was, instead, developed using common curricular models from the field of technical and professional communication.

I selected this course as a location for this case study not only because it directly addresses questions of changing literacy practices as they are impacted by the advent of new media technologies, but also because it provides a useful curricular model for developing digital literacy courses: the academy hasn't traditionally recognized digital literacy as a form of literacy that needs to be taught; it's assumed that individuals in a technological society will naturally

acquire digital literacies—so there is no place in school specifically designated for teaching digital literacy. This writing and technology course, however, may serve as a model both for teaching digital literacy and for developing a curriculum that supports the pedagogical structure envisioned by the New London Group (1996): the literacies employed by the students in the course are certainly multi-modal, and the course structure uses situated practice, overt instruction, and critical reflection to produce transformed practice in nearly all of the course projects (not just in the MOO project, although that is where it is most accessible). The course's focus on remediating texts also supports Kress's (2000) description of a "dynamic, constantly remade and re-organised set of semiotic resources" and the actions of individuals "as the remakers, the transformers, the re-shapers of the representational resources available to them" (p. 155).

In this chapter, I begin by working toward a working definition of "digital literacy" and proceed from there to marking the connections between the course work as both a vehicle for digital literacy and a model of the New London Group's multimodal/multiliteracies pedagogy. I finish by invoking Gee's notion of Discourse to develop the notion that digital literacy relies on the acquisition of a digital Discourse, which can be gained by immersion in communities of practice--the object of this case study being a specific example of a community of practice wherein one can work toward acquiring a digital Discourse, and ultimately, digital literacy.

#### Defining "Digital Literacy"

As my particular interests lie at the intersection of rhetoric, technology, and pedagogy, an examination of digital literacy, rather than traditional print literacy, seemed an appropriate problem space for me to encounter and observe. But early in the study I realized that there is currently no stable definition of "digital literacy." Different theorists have spoken of computer

literacy, media literacy, electronic literacy, or silicon literacy in attempts to identify communicative technology use as a valid domain for literacy instruction; however, other theorists have rejected the coupling of these modifiers with the term ‘literacy’ as it serves to dilute our understanding of (print) literacy. In *Literacy in the New Media Age*, Kress (2003) argues that

...*literacy* is the term to use when we make messages using letters as the means of recording that message....my approach leaves us with the problem of finding new terms for the uses of the different resources: not therefore “visual *literacy*” for the use of image; not “gestural *literacy*” for the use of gesture; and also not musical “*literacy*” or “soundtrack *literacy*” for the use of sound other than speech; and so on (p. 23).

Kress very specifically differentiates literacy as specifically oriented to writing, although he acknowledges that computer technologies problematize this artificial distinction between modes. It appears that Kress seeks to make a distinction between resource (knowing how to write) and its use:

*Literacy* remains the term which refers to (the knowledge of) the use of the resource of writing. The combination of knowledge of the resource with knowledge of production and perhaps with that of dissemination would have a different name. That separates, what to me is essential, the *sense of what the resource is* and what its potentials are, from associated questions such as those of its *uses*, and the issue of whatever skills are involved in using a resource in wider communicational frames (p. 24).

While this distinction may be useful for the construction of his social-semiotic theories of language use, it seems to me that separating the resource from the production (use) and

dissemination is to decontextualize literacies by dis-embedding them from their social, historical, and cultural milieu; moreover, by limiting “literacy” to “writing with letters” (p. 61), one is forced to separate the written from the visual, despite the inherently visual nature of writing. If we agree that literacy *is* rooted in socio-historical contexts (Street, 1984), it must encompass more than the particular sign system of writing with letters. And although literacy itself is multimodal, it is useful to differentiate the particular modes or uses of literacy when seeking to observe the effects of literacy practices; thus, rather than seeking a different name for meaning production that includes more than just writing, I would prefer to couple the concept of literacy as socio-historically situated practice with a modifier that allows us to make a distinction between those practices that are culturally located within print media and those located within digital media.

I prefer the term “digital literacy” because I believe it captures the notion that the literacy practices referred to are enacted in digital spaces. I would contrast this sense of media, location, and context with terms such as “computer literacy” which evokes a concept of mere tool use, “internet literacy” which is too specific both in locale and in historical moment, and “electronic literacy” which is too broad in scope (as it can be seen as referencing any electronic device). “Technological literacy” or “technology literacy” is similarly too broad, as nearly all modes of communication are technologies—so there is no functional distinction between print-based literacy and digital literacy. Ilana Snyder (2002) has suggested “silicon literacy” as the intersection of traditional and digital literacy practices:

Now, for the first time in history, the written, oral and audiovisual modalities of communication are integrated into multimodal hypertext systems made accessible via the

Internet and the World Wide Web. Silicon literacy practices represent the ways in which meanings are made within these new communication systems (p. 3).

Even though her term does reference the materiality of the communication media (as silicon is currently a key element in the production of computer chips), it also carries connotations of a specific location (Silicon Valley) and a specific moment in time (as computer technologies in the very near future may no longer rely upon silicon as a major component).

What, then, *is* “digital literacy”? In order to articulate my definition of digital literacy, I chose to draw on two sources: the published literature in the field of literacy and technology studies and the definitions offered by the informants of this study.

#### *Participants’ Definitions of Digital Literacy*

When I asked the students in the writing and technology class to define “digital literacy,” the responses focused either on effective, efficient uses of computer technologies in general, or more specifically on applying print literacy practices of reading and writing to new media. I had expected the “computer-use,” literacy-as-skills response both because common articulations of literacy in American schooling have traditionally focused on teaching literacy as a simple set of skills that can be explicitly taught exclusive of context; additionally, according to a survey taken by the instructor at the beginning of the course, students’ stated goals for the course nearly all included gaining technological competencies and improving their knowledge and use of computer-facilitated communicative skills (the exceptions were those students who self-identified as highly skilled, or, as one student put it, “I’ve always been a computer ‘geek’ :-”).

The second form of response shows the strong connection that the students have to print-based literacy practices, as shown in this representative response by Kelly:

I hear the term “computer illiterate” all of the time and that has nothing to do with the written word. I think that to be fully literate you have to be able to apply the ability to read to several types of mediums. ... To be fully digitally literate you have to continuously learn new things as new things are presented.

Interestingly, none of the students made connections between the visual and the textual modes of representation that are afforded by the technologies; however one student, Cassy, did implicitly reference the notion of digital media as representing virtual spaces; she identifies “digital literacy” as

...the ability to read and write through the use of computers, as well as the ability to navigate through electronic interfaces.

For these students, then, “digital literacy” is seen as a transference of traditional literacy practices (reading and writing), to new media; and this is a good starting point—digital literacy is ineluctably tied to text-based literacy practices. However, digital literacy also goes beyond the textual, and includes the effective use of symbolic systems, visual representations of language, and digital object manipulation. Snyder (2002) argues that:

in an electronically mediated world, being literate is to do with understanding how the different modalities are combined in complex ways to create meaning. People have to learn to make sense of the iconic systems evident in computer displays – with all the combinations of signs, symbols, pictures, words and sounds (p. 3).

Carmen Luke (2000) frames her articulation of digital literacy practices via the notion of “multiliteracies”:

The Multiliteracies of digital electronic “texts” are based on notions of hybridity and intertextuality. Meaning-making from the multiple linguistic, audio, and symbolic visual

graphics of hypertext means that the cyberspace navigator must draw on a range of knowledges about traditional and newly blended genres or representational conventions, cultural and symbolic codes, as well as linguistically coded and software-driven meanings (p. 73).

“Digital literacy” then is both tied to traditional notions of print literacy practices, but it changes and transforms those practices when they are enacted in new media spaces; digital literacy practices are multimodal and recombinative, constantly reconfiguring themselves from the available modes and resources of the digital medium. And even though the students in this study could not explicitly articulate a full definition of digital literacy, they were, through the course projects, engaging in digital-literacy practices. These practices were perhaps most evident in the MOO remediation project.

#### Digital Multimodality

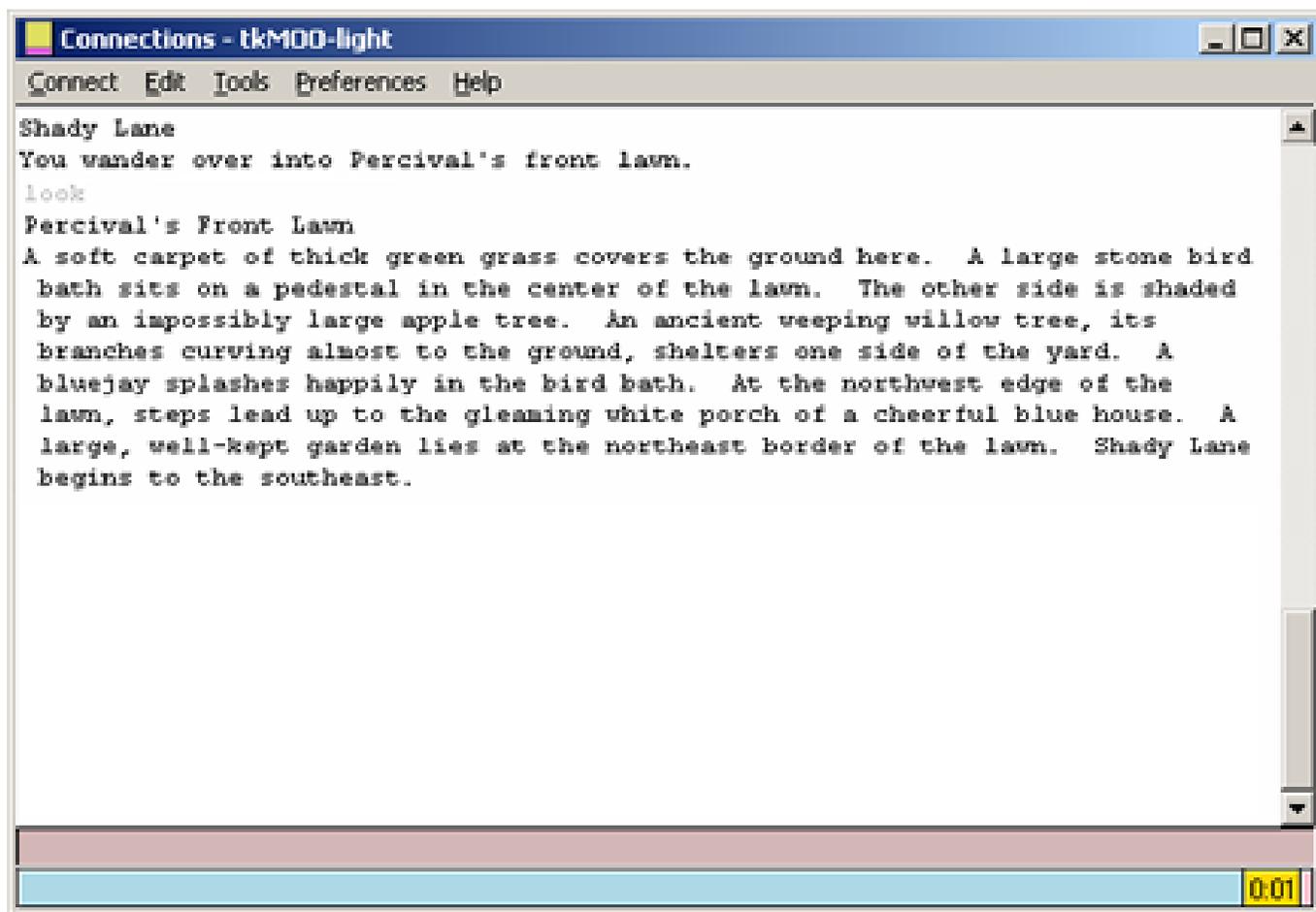
In 1996, the New London Group published *A Pedagogy of Multiliteracies*, in which they identify six major modes of meaning, “areas in which functional grammars, the metalanguages that describe and explain patterns of meaning, are required—Linguistic Design, Visual Design, Audio Design, Gestural Design, Spatial Design and Multimodal Design” (p. 76). They designate Multimodal Design as representing the patterns of interconnection between the other modes of design. The MOO remediation project incorporates all of the available design elements within its scope; I would therefore designate this activity as “multimodal”.

#### *MOOs and MUDs*

Just what is a MOO? First, let me assure you that it has no relation to cows or any other barnyard metaphor or activity: MOO stands for Multi-User Domain, Object Oriented. A MOO is a “computer program that allows multiple users to connect via the Internet to a shared textual

world of rooms and other objects, and interact with each other and this virtual world in real time...the MOO is a living, ever-changing textual environment” (Holmevik & Haynes, 2000, p. xv). Multi-User Domains (or MUDs) were initially developed as social arenas, primarily focused on role-playing games. As the technology matured, MUDs evolved from game-spaces to social communities; with the advent of Object-Oriented MUDs (*i.e.* MOOs), the spaces could be extended and produced by the users, rather than only by system administrators. Professional organizations, businesses, and educational institutions have been using MOOs for research and education for the past decade; despite their origins as online games, they now are primarily used as teaching spaces. Figure 1 represents the interface to *Connections*, a text-only MOO that is available for classroom use.

Figure 1. Connections, A text-only MOO.



MOOs are particularly rich environments for the teaching of writing, as they “combine the power of the written word with the informality of the spoken context” (Holmervik & Haynes, 2000, p. xvi); Oren (1996) identifies several reasons why MOOs are ideal vehicles for teaching, including the notion that “significant learning is achieved if based on a construction process” engaged in by students who build spaces in the MOO, and “the belief that some skills like mapping and linking are part of information literacy that should be imparted to students” (<http://english.ttu.edu/kairos/1.2/binder2.html?coverweb/avigail.html>). Another use of the MOO as an educational medium, is to allow “students to explore multiple subjectivities, to explore and

develop a character or characters that might differ in slight or significant ways from that of their ‘real’ lives” (Sanchez, 1998, p. 102).

For the students in this study, the MOO served as a place in which they could reconfigure traditional academic texts into multi-modal new media exhibits; the MOO that they worked in has a web-enabled interface (see Figure 2) which allows them to incorporate graphical and multimedia elements into this text-based virtual reality.

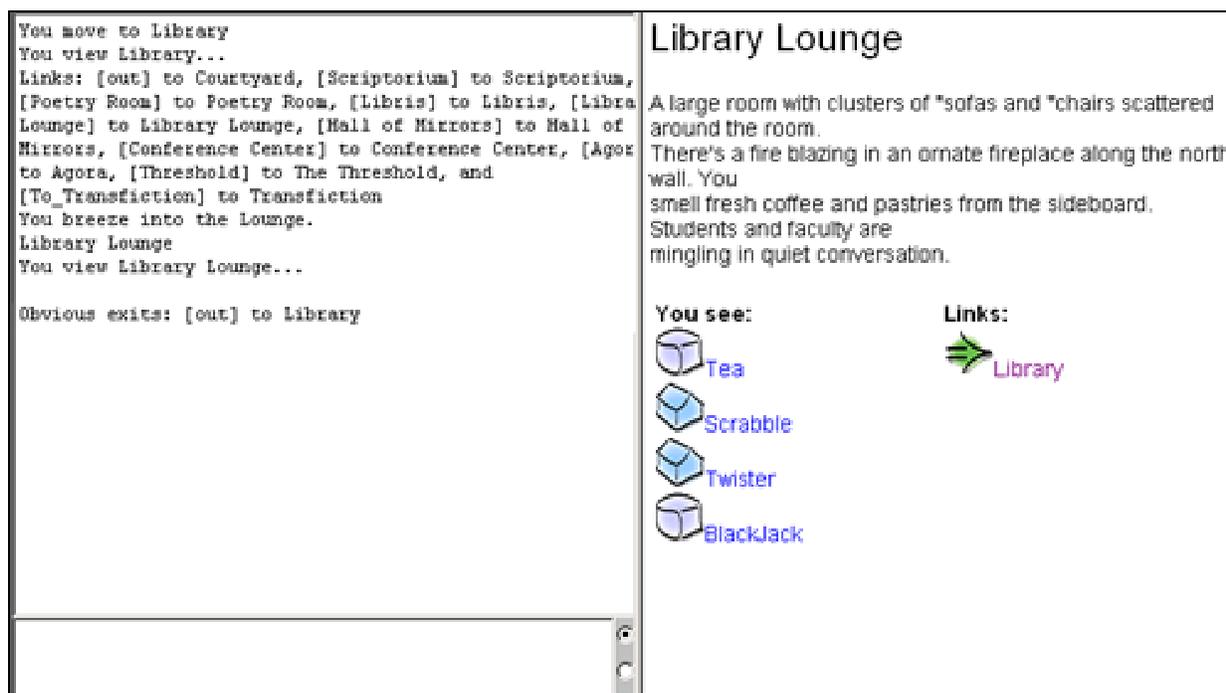


Figure 2. LinguaMOO, a MOO with a graphical web interface

### *Remediation Within the MOO*

One of the primary texts in the writing and technology course is Bolter and Grusin's (1999) *Remediation: Understanding New Media*, in which the authors examine the practice of remediation—"the representation of one medium in another, [which is] a defining characteristic of the new digital media" (p. 45); the first major project in the course asked students to engage in the practice of remediation within the MOO:

For this project, you will remediate a paper that you have written for a previous class into a MOO exhibit. The exhibit you create should provide the information in the paper as well as present your argument or thesis using the MOO objects you create.

The MOO exhibit must provide instructions for visitors about how to read the room, use the objects, and best navigate your space. Additionally, the MOO exhibit should not contain large chunks of text copied and pasted right from your paper, but should employ the objects that the MOO contains to make the same or similar points as your original text (MOO assignment sheet).

The MOO exhibits created by the students utilized all of the design modalities identified by the New London Group: The texts of their projects drew on the mode of Linguistic Design, the graphics and icons they selected required the use of Visual Design, some students included multimedia sound files, thus engaging in Audio Design, they had to map out the location and architecture of their space in metaphors of rooms and exits, and were required to connect their projects back to the main room for the course (Spatial Design), and the objects they created, which could be manipulated by any visitor to their space, I would designate as involving Gestural Design (one student programmed an interactive virtual robot who could explain to visitors how to navigate and use his exhibit; this too, I would designate as gestural).

When the students had completed their MOO exhibits, they held an open-house for visitors; as part of the final product, they also wrote reflective essays about the process of creating the exhibits and why they designed them as they did. One of the students, Gary, explained that his moo exhibit was “remediating a paper I wrote on Bertolt Brecht’s *Mother Courage and Her Children*”:

The first part of the page is a note, entitled “INSTRUCTIONS.” This note gives a rundown of what everything on the page is for. It mentions the bookshelf, the web projector, the message board, the boombox, the projector and the three web pages (Brecht Time, MC Characters, and Play Overview). It succinctly explains the functions of the room’s objects.

Gary’s creation and use of objects to support reading and writing within this virtual context constitute an example of digital literacy practices: traditional print-based literacies have been remediated and transformed within the digital medium. In order to negotiate this “text,” readers must not only be able to read, they must also be able to manipulate the digital-textual objects in this space. Additionally, the exhibit space created by Gary is multimodal because it uses a rich combination of graphical representations (logo, icons), visual elements (color scheme, font selection), text, sound, and interactivity (through the creation of the “Brecht Bot 3000XL”). The interactivity provided by the Brecht Bot represents an extension of the author of the exhibit, thus occupying the gestural mode defined by the New London Group (1996):

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Brecht Bot 3000XL says, "You should check out the play
overview, or the slide proj."
First_Guest says, "slide proj?"
Brecht Bot 3000XL [to First_Guest]: You should check out
the projector for info on Mother Courage
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Another student, Patty, presents an argument that her MOO exhibit (Figure 3) is successful:

The reasons I think my MOO exhibit is successful are: 1) the text is chunked and shown in an easy-to-use slide projector; 2) the directions I provide are brief but thorough and detailed; 3) the objects I created are entertaining but add to a sense of physical space and appealing knowledge about various topics; 4) my room is consistent but attractive so that

players can focus on the text and other components without feeling overwhelmed; and 5) the exhibit is easily navigable and contents are located in appropriate places.

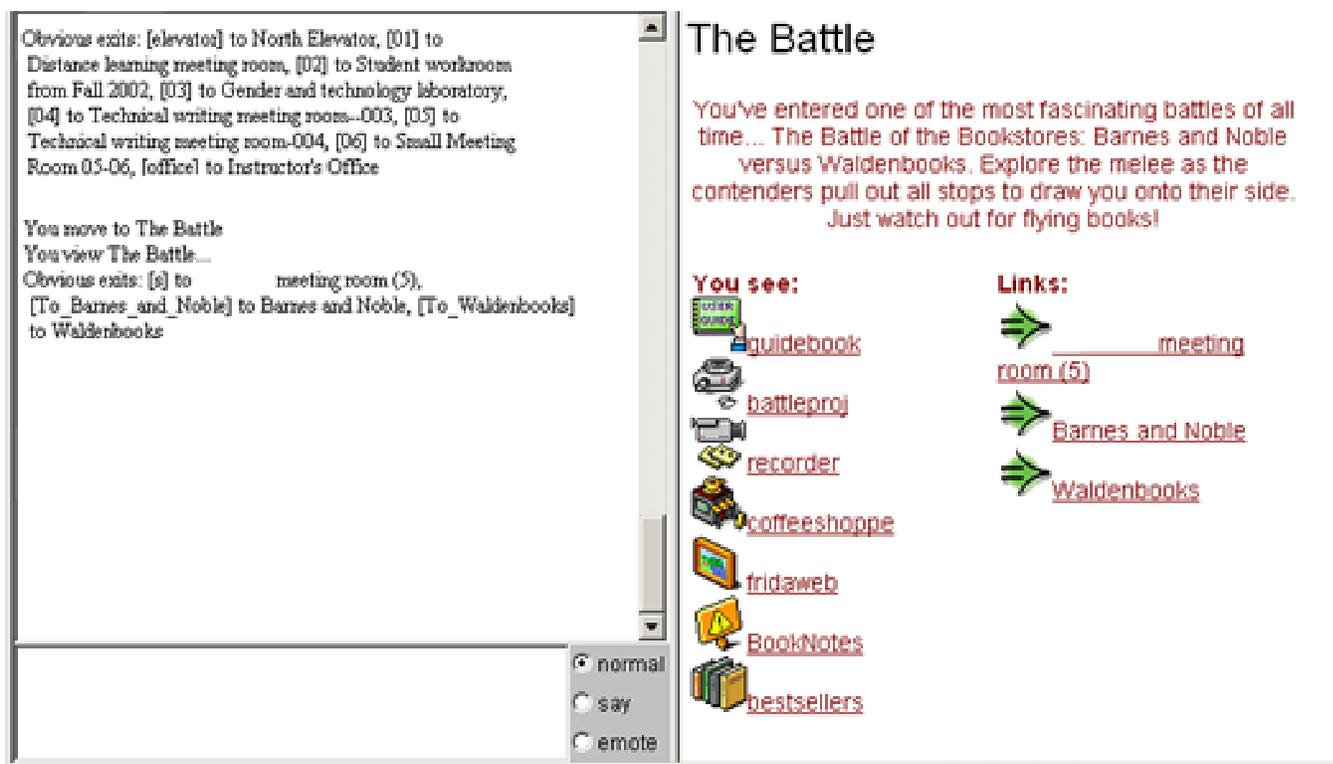


Figure 3. Student MOO Project.

Patty addresses her linguistic, visual, and spatial design choices directly, rather than enumerating the objects she has created and their use. Here, the digital literacy practices are more explicit in the student's reflection.

### Teaching Digital Literacy

As I observed the writing and technology course for this study, it became clear to me that it represented an instance of the specific pedagogical practices proposed by the New London Group in "A Pedagogy of Multiliteracies" (1996). And although the course seemed almost directly informed by the work of the New London Group, the instructor had not read it. Her course engaged students in situated practice, overt instruction, critical reflection and transformed

practice; this pedagogical model was most visible in the MOO exhibit project, but it also appeared in the other projects in the course.

### *Situated Practice*

The MOO itself is a kind of instantiation of situated practice as a “simulation of the relationships to be found in workplace and public spaces” (New London Group, 1996, p. 84)—indeed the MOO is an actual public space, so it is both a simulation of the social arena (and the classroom), but it is also a real location that non class members can visit and explore. The New London Group’s definition of situated practice also included the notion of “immersion in experience and the utilisation of available Designs of meaning, including those from the students’ lifeworlds” (p. 88): not only is the MOO an immersive experience, but for the MOO exhibit project, students could choose to bring in any text they wished to remediate, based on their own interests and experiences, and those choices ranged from essays created for courses in scientific disciplines to traditional academic argument to fiction.

### *Overt Instruction*

The professor also provided overt instruction through modeling, in-class discussions of building practices in the MOO, and by providing written instructions such as a handout on how to create space in the MOO using the “@dig” command; this overt instruction included “the introduction of explicit metalanguages, which describe and interpret the Design elements of different modes of meaning,” (New London Group, 1996, p. 84) particularly through the use of Bolter and Grusin’s (1999) *Remediation* text as a theoretical base for the work done on the MOO project.

### *Critical Reflection*

Critical reflection in the course was achieved both through the post-production reflections and through the continuing online and face-to-face discussions of their projects in terms of immediacy (the attempt to remove the technological interface from the user experience) and hypermediacy (a positioning of the technology such that it is not hidden, but overly obvious) (Bolter & Grusin, 1999). Critical reflection was also supported by the use of outside reviewers in the course, both of the MOO exhibit project and the instructional digital video project—the incorporation of real audiences helps the students to gain the distance needed to perform critical reflection upon their own work.

Because of the nature of the course, the students also discussed issues of accessibility and of the effects of technology on identity formation and on socio-cultural norms and practices (at one point, for instance, the class viewed and discussed a website that featured a webcam at a laundromat in Paris, which highlighted issues of possible privacy invasion as well as considerations of technology-mediated public display). It was clear from the discussions in the class that the professor sought to invest her students with a critical understanding of the technologies they use and the issues of power and cultural capital that are tied to those technologies. As Lankshear and Snyder (2000) point out:

To participate effectively and productively in any literate practice, people must be socialised into it. But if individuals are socialised into a literacy without realising that it is socially constructed and selective, and also that it can be acted on and transformed, they cannot play an active role in changing it (p. 31).

### *Transformed Practice*

Transformed practice was most visible in the MOO exhibit project, as students used critical reflection and overt instruction within the realm of situated practice to build their

exhibits; the act of remediation (transforming meaning by placing media within new media contexts) is a kind of transformed practice, in that it performs a “transfer in meaning-making practice, which puts the transformed meaning (the Redesigned) to work in other contexts or cultural sites” (New London Group, 1996, p. 84).

### Digital Discourse and Communities of Practice

The focus in the writing and technology course on critical reflection also provides a bridge to Gee’s (1989) distinction between discourses and Discourses; digitally-mediated spaces, such as the MOO, the Web, or Instant Messaging, each have their own rhetoric, that is, their own forms of discourse within particular contexts, but it also is possible to view digital literacy as an acquisition of a technology Discourse. In “Literacy, Discourse, and Linguistics,” Gee identifies Discourse with a capital D as a “sort of ‘identity kit’ which comes complete with the appropriate costume and instructions on how to act, talk, and often write, so as to take on a particular role that others will recognize”; capital D Discourses are combinations of “*saying(writing)-doing-being-valuing-believing*” (p. 526). According to Gee, “Discourses are not mastered by overt instruction...but by enculturation (‘apprenticeship’) into social practices through scaffolded and supported interaction with people who have already mastered the Discourse. ... You cannot overtly teach anyone a Discourse, in a classroom or anywhere else” (p. 527); thus an experiential pedagogy, such as that enacted in the writing and technology course—a pedagogy of situated practice, overt instruction, critical reflection, and transformed practice—provides a valuable space for students to engage in the acquisition of a technology Discourse. Additionally, Gee argues that in order to acquire new Discourses, one has to be in a position to critique that Discourse, using meta-knowledge; my observations of the writing and technology course revealed students actively engaging in the development of meta-knowledge

through the practice of remediating and reflecting upon the activities of remediation; the students are not only immersed in the technology Discourse, they are also aware of it and simultaneously engaged in a critical study of it.

Discourses, as Gee articulates them, are clearly socially-constructed; to engage in a Discourse is thus an indication of belonging to a particular social network. These social networks can be developed both in school and outside of it. Eckert (2000) identifies the kind of social networks inscribed by Discourses as “communities of practice” – groups of people who work together toward a particular enterprise; these communities of practice are the interactional sites where social meaning is most clearly indexed by language, and where language variation and social meaning are co-constructed. Through my observations of the writing and technology class, I came to view them as a community of practice, engaged in the project of socially constructing an understanding of digital literacy as a technological Discourse.

### *Intersection of School and Community*

The students’ use of (and construction of) the MOO entails the most visible aspects of their community of practice at work, and it serves as an interesting space—an intersection between school and community. Allan Luke argues that:

literate practice is situated, constructed, and intrapsychologically negotiated through an (artificial) social field called school, with rules of exchange denoted in scaffolded social activities around particular selected texts. But any acquired skills, whether basic or higher order, are reconstituted and remediated in relation to variable fields of power and practice in the larger community (p. 140).

The MOO is both a part of the artificial social field of school and apart from it; it is virtual, yet it is essentially a less artificial construction than is the classroom—the MOO privileges interactivity,

provides access to a real-world audience, supports community development, and, within the context of the class in this study, it serves as a location that fosters critical reflection of technology use.

### Conclusion: Digital Literacy Instruction

In this chapter, I have examined the curricular and pedagogical work of a course in writing and technology that appears to support a useful framework for helping students to acquire a technology Discourse and to engage in critical reflection of their digital literacy practices. This framework follows the pedagogical practices suggested by the New London Group (situated practice, overt instruction, critical reflection, and transformed practice), enacting them in a project-based, multimodal curriculum. A unique aspect of the course is the incorporation of the multi-user textual/graphical virtual environment of the MOO, which provides a space that bridges the artificiality of classroom instruction and real-world community development. The combination of the pedagogical framework and the virtual environment-as-context supports both digital literacy instruction and the development of communities of practice: two key activities required of a curriculum that seeks to both prepare and empower students who are likely to be engaged in information-based “text work” (Luke, 2003, p. 137).

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