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THE ROLE OF TECHNOLOGY IN THE NEW LITERACIES

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Towards Critical Multimedia Literacy: Technology, Research, and Politics

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NEW MEDIA, NEW LITERACIES

What should critical literacy mean in the age of multimedia? The purpose of critical literacy has always been to empower us to take a critical stance toward our sources of information. In an age of print, the most significant public sources that sought to shape our social attitudes and beliefs presented themselves to us through the medium of text: school textbooks, mass circulation newspapers, government publications, advertising copy, popular novels, and so forth. Illustrations were just that: redundant, secondary content subordinate to the written text. The written word had power and prestige; it defined literacy. We taught students to carefully and critically study written text, and by and large we ignored the accompanying images.

The advent of television challenged the basic assumptions of the traditional model of critical literacy. It was clear that more people were being influenced by what they saw and heard than by what they read. The academy refused to take television seriously for its first few decades, but gradually the field of cultural studies began to emerge and critically study all popular media. The analysis of print advertising awoke to the significant ideological messages in advertising images (Williamson, 1978). Both images and commentary were seen as central to the politics of television news (Hall, Critcher, Jefferson, Clarke, & Roberts, 1978; Hartley, 1982). Feminist critique examined images in advertising media, school textbooks, and even our literacy primers.

Nevertheless, visual literacy was still nowhere to be found in the standard curriculum, and the concept of a critical visual literacy remained the province of research specialists. With the rise of the World Wide Web as a near-universal information medium, it became clear to all of us that written text was just one component of an essentially multimodal medium. My first view of a web page, using the Mosaic browser on a unix workstation, was startling not for the delivery of text, but for the inline image of (then Vice-President and Internet supporter-in-chief) Al Gore. The text introduced the World Wide Web gateway of the University of Illinois supercomputing center, but that photo of Al Gore spoke volumes about both the potential of the Web as a multimodal medium and its political significance.

Web pages and Web sites are valued today for their integration of text, images, animations, video, voice, music, and sound effects. Web site authoring is the new literacy of power. Web sites are gradually replacing printed newspapers and magazines, college catalogues and shopping catalogues, travel brochures, and corporate and government publications. Print has a certain convenience which will ensure that it remains, but the genres of print are already coming to resemble those of the Web, and each successive generation shows a stronger preference for online-information media. The most common print media and genres of everyday life, except only the popular novel so far, seem likely to be superseded by their electronic successors. The new generation of university students, even graduate students, regards a physical visit to the library, other than for quiet study, as an anachronism. If information is not available online, it is bypassed in favor of information that is.

Critical literacy needs to respond to these historic changes. We need a broader definition of literacy itself, one that includes all literate practices, regardless of medium. Books-on-tape are as much literate works as are printed books. Scripted films and television programs are no less products of literate culture in their performances than they were as texts. In printed advertisements, the message toward which we need to take a critical stance is conveyed not just by the textual copy, nor even by the copy and the images, but by the interaction of each with the other, so that the meaning of the words is different with the images than without them, and that of the image together with the words distinct from what it might have been alone. In the multimodal medium of the Web, the message is less the medium than it is the multiplication of meanings across media (Lemke, 1998a, 1998b). Critical literacy *is* critical multimedia literacy.

Media are converging. This is especially evident with commercial media. Television programs, including the network news, have associated multimedia Web sites, as do popular films, digital games, and even books. The *Harry Potter* books began as a print literacy phenomenon, but today there is a seamless web of books, films, videos, videogames, Web sites, and other media. *The Matrix* began as a theatrical-release feature film, but its fictional world is now distributed across all media. Tolkien's *Lord of the Rings* has been re-imagined as film, animation, and in a variety of videogame genres. Young readers would consider us illiterate today if we knew only the printed texts, because for them the intertextual meanings and cross-references among all these media are essential to their peer-culture understanding and "reading" of these works. *Enter the Matrix*, the videogame, advertises that *The Matrix Reloaded* film is incomplete without the events, scenes, and backstory in the game. Not only are the textual themes and content distributed over the various media in all these and many other cases, but so are the visual images and visual styles and the themes and meanings they present.

What is a text today? It is not bounded by the first and last pages of a folio book. It is distributed across multiple sites and media. It is an intertextual constellation, not just in the imagination of literary theorists, but in simple everyday fact. The principle of hypertext or hypermedia, which we associate with the Web, based on explicit links of text or images to other text and images, from web page to web page, now also applies to the social and cultural linkages among our reading of books, viewing of films and television, screening of videos, surfing the Web, playing computer games, seeing advertising billboards, and even wearing T-shirts and drinking from coffee mugs that belong to multimedia constellations. Each of these media directs us to the others, without Web-like hyperlinks; each one provides an experiential basis for making meanings differently with all the others.

We are more and more enmeshed in these multimedia constellations. More than ever we need a critical multimedia literacy to engage intelligently with their potential effects on our social attitudes and beliefs.

COPING WITH COMPLEXITY

We need conceptual frameworks to help us cope with the complexity and the novelty of these new multimedia constellations. If we are to articulate and teach a critical multimedia literacy, we need to work through a few important conceptual distinctions and have some terminology ready-to-hand.

The research field of *social semiotics* (Halliday, 1978; Hodge & Kress, 1988; Lemke, 1989; Thibault, 1991) has for some time now been trying to develop the key concepts needed for these tasks (Kress & van Leeuwen, 1996, 2001; O'Toole, 1990; van Leeuwen, 1999). In various incarnations it is also known as critical discourse studies, critical media studies, and critical cultural studies. I present here the terms and distinctions I myself find it useful to make. They are not very different from those of most people working on these problems.

The core idea of semiotics is that all human symbolic communication, or alternatively all human meaning-making, shares a number of features. In multimedia semiotics, these common features are taken as the ground which makes integration across different media possible. The fundamental conceptual unit is the signifying or meaning-making practice. It applies both to creation of meaningful media and to the interpretive work of making meaning from or with them. Such practices are culturally specific in their details, but can be described within a common framework. All meaning-making acts make three kinds of meaning simultaneously: (a) they present some state-of-affairs, (b) they take some stance toward this content and assume an orientation to social others and their potential stances to it, and (c) they integrate meanings as parts into larger wholes. In doing each of these things, they make use of cultural conventions which distinguish and often contrast the potential meaning of one act or sign with those of others that might have occurred in its place, and the meanings of each act or sign shift depending on the acts and signs that occur around it and are construed as parts of the same larger whole. The complex process by which the range of conventional meanings that any act or sign can have gets specified by context and co-text until we are satisfied that some consistent pattern has emerged is simplified by our reliance on familiar, recognizable idioms and genres.

This model of meaning-making applies to language, whether spoken or written, and also to pictorial images, abstract visual representations, music, mathematics, sound effects, cooking, dress, gesture, posture, signed languages, or actions as such. It was developed originally for the well-studied case of language, but seems to apply pretty well to all semiotic modalities. There is another core principle for multimedia semiotics: that we can never make meaning with just one semiotic modality alone. You cannot make a purely verbal-linguistic meaning in the real world. If you speak it, your voice also makes nonlinguistic meaning by its timbre and tone, identifying you as the speaker, telling something about your physical and emotional state, and much else. If you write it, your orthography presents linguistic meaning inseparably from additional visual meanings (whether in your handwriting or choice of font). If you draw an image, neither you nor anyone else (with a very few exceptions), sees that image apart from construing its meaning in part through language (naming what you see, describing it), or imagining how it would feel to draw it, sculpt it, etc. For young children, the distinction between drawing and writing has to be learned. For all of us, speech and our various body gestures form a single integrated system of communication. All communication is multimedia communication.

Or, more precisely, it is multi-modal communication. Multimodality refers to the combination or integration of various sign systems or semiotic resource systems, such as language, depiction, gesture, mathematics, music, etc. The medium, as such, is the material technology through which the signs of the system are realized or instantiated. Language is a modality or

semiotic system. It can be realized in the medium of speech, or the medium of printed orthography, or the medium of Braille writing, or in manual signs. The print medium can accommodate linguistic signs and also image signs, as well as mathematical signs, abstract diagrams, musical notation, dance notation, etc. It cannot accommodate animation or full-motion video. In many cases, we have only a single name for both the modality and the medium, as for example with *video*. As a modality, it means the cultural conventions that allow us to create meanings by showing successive images in time, so that the semiotics of still images are no longer sufficient to understand what is going on. New semiotic conventions apply in the case of video (and animation). As a medium, video or film can accommodate images (as still frames), language, music, and many other modalities in addition to its own unique modality.

Because every physical medium carries abstract signs in ways that allow us to interpret features of the medium also through other systems of meaning (the grain of a voice, the style of a font, the image quality of a video), the material reality of communication is inherently multimodal. Moreover, the various modalities and sign systems have co-evolved with one another historically as parts of multimodal genres, even within a single medium. We have conventions for integrating printed words and images, video visuals and voice-over narration, music and lyrics, action images and sound effects. At the simplest level, this integration takes place by combining the contributions to the (1) presentation of a state-of-affairs, (2) orientation to content, others, and other stances, and (3) organization of parts into wholes, from each modality. This combination is really a multiplication in the sense that the result is not just an addition of these contributions, as if they were independent of each other, but also includes the effects of their mutual interaction; the contribution of each modality contextualizes and specifies or alters the meaning we make with the contribution from each of the others. The image provides a context for interpreting the words differently, the words lead us to hear the music differently, the music integrates sequences of images, and so forth.

This multiplication happens to some extent separately for the (1) presentational content, (2) orientational stance toward content and toward addressees, and (3) organizational structure. But each of these three aspects of the overall meaning also influences the other two. If the musical score links visual images into the same larger unit, then the way we read the content-meaning of those images can be different from how we would interpret them if they were separated into different units by a break or major shift in the music, so that they no longer seemed as relevant to each other, no longer as strongly interacting with each other and influencing each other's content-meaning.

This takes us, in brief, about as far as general multimedia semiotics has come in the last few decades. From these ideas, and an analysis of the typical multimodal genres of a society, we could provide a reasonable conceptual basis for a critical literacy curriculum to help students analyze meanings in a particular multimodal text or genre. But as I have tried to argue previously in this chapter, we have already moved far beyond multimodality as such. The Web is a truly multimedia medium insofar as any other medium can be embedded within a web page and linked into a Web site. As a medium, it can accommodate, in principle, and increasingly in practice, *any* modality and it can at least simulate most other media. It is also a hypertextual or hypermedia medium because elements in other media and modalities can be linked together in ways that allow the user to choose a variety of paths through the Web site in the course of time.

A trajectory across links within a Web site may already carry us across different genres and different media using different modalities. But we do not just surf within Web sites; we increasingly, perhaps normally, surf across sites, and therefore across the Web-genre conventions of different institutions—from a film-site (The Matrix, Lord of the Rings) to a commercial product site (Nike sportswear, Pepsi-Cola), to an information site (Internet Movie Database, NASA Earth

Observatory), to a portal or search site (Yahoo, Google), a news site, personal homepage, university site, etc. We are learning to make meaning along these *traversals* (Lemke, 2002a, 2002b, 2003) in ways that are trans-generic and trans-institutional. Such traversals are still relatively free of the constraints of conventional genres and represent an important potential source of radically new kinds of meanings.

All that lies still within the medium of the Web, but traversals are not limited to a particular medium. We make meanings as we move our attention, over shorter and longer periods of time, among Web surfing, television viewing, book reading, game playing, face-to-face conversations, and indeed, all the activities of daily life. As our culture increasingly enmeshes us in constellations of textual, visual, and other themes that are designed to be distributed across multiple media and activities, of the sort I have already discussed, these cross-activity and cross-medium connections tend to become coherently structured and not just randomly sequential over the course of a day. We begin to see them as relevant to each other's meanings. We begin to use the meanings from one to interpret the meanings of others. Attitudes, beliefs, and values are reinforced across media, activities, and domains of our lives. Some of these constructions are our own, but increasingly they are designed by others to influence us. In both cases, we need a genuinely critical multimedia literacy to maintain our relative autonomy in making choices about what and who to believe, identify with, emulate, admire, scorn, or hate. It is not just fiction and fantasy, or commercial products, that are promoted by multimedia constellations; it is also attitudes toward war and peace, Muslims and Jews, health-care systems, gay rights, political candidates and corporate profits.

CRITICAL MULTIMEDIA ANALYSIS

The field of critical discourse analysis is now well developed (e.g., Fairclough, 1989, 1995; van Dijk, 1998, 1997; Wodak, 2000; Wodak & Reisigl, 2000). It has its own new journal (Graham, Fairclough, Wodak, & Lemke, 2004). It grows out of functional linguistic discourse analysis (e.g., Halliday, 1985; Halliday & Hasan, 1989; Martin, 1992) and earlier initiatives in language and ideology studies and social semiotics (e.g., Fowler, Hodge, Kress, & Trew, 1979; Halliday, 1978; Hodge & Kress, 1988; Hodge & Kress, 1993; Kress & Hodge, 1979; Lemke, 1995). But it has only recently begun to address nonlinguistic media and multimedia (Kress & van Leeuwen, 2001; Lemke, 2002b; Scollon & Scollon, 2003; van Leeuwen, 1999). With these beginnings, however, we are now on the verge of developing a true discipline of critical multimedia analysis.

Here are some key questions that must be addressed as we begin to define and prepare to teach critical multimedia literacy:

- How do people from diverse backgrounds interpret images or video critically in relation to accompanying text or narration?
- How do we read text and hear spoken language differently when images or video are integrated with them in space and time?
- How do people in different cultural and subcultural communities construct informational and rhetorical messages that artfully combine language and image, and sound, music, interactive engagement, and movement in virtual space?
- What kinds of messages are less readily available for argument and critique when they are presented visually rather than verbally (e.g., lifestyle values "sold" along with product advertising)?

- What are the messages presented in popular culture media which are addressed to mass audiences, but designed to further the interests, commercial and political, of those who control these media?
- How do people from different backgrounds (by gender, age, social class, ethnic culture, etc.) interpret these media and appropriate them for their own purposes, making them part of their own cultures and communities?
- In what ways do the original messages infiltrate our lives as we appropriate these media, and in what ways do we succeed in transforming their significance for us?
- How critical are we, and how critical do we need to be?

Verbal descriptions or explanations and visual images or representations are inherently incommensurable: they always necessarily present different meanings, however similar we may think them to be according to some set of disciplinary conventions. To what extent does this inherent incommensurability tend to ensure that each will undermine the monological certainties which the other projects? There is no one-to-one correspondence of any complex image with a written description of verbal "reading" of the image. There is no real image that shows exactly and only what a verbal account says. Multimodal presentations have an inherent critical potential to the extent that we learn how to use the images to deconstruct the viewpoint of the text, and the text to subvert the naturalness of the image. Multimodal rhetorical techniques usually try to combine image and text in ways that reinforce a single attitude, but they can never entirely succeed. We need techniques of analysis that can both show how images and texts have been selectively designed to reinforce one another and show their residual potential for undermining each other. This is a key part of the job of critical multimedia analysis.

I have mainly used "text" and "image" to make my point, but clearly, full-spectrum multimedia, i.e., those which make use of not only text and images, but also sound effects, music, designed spaces, and actional affordances (interactivity), multiply both the potential for carrying implicit ideological messages and the potential for subverting their own efforts. No single consistent meaning can be projected across so many different media. The signs from each medium retain the potential for alternative interpretations which are *not* consistent with those from the other media, and combining these perverse or divergent readings opens up spaces of critique and awareness of the extent to which the designed multimedia text is deliberately trying to foreclose these alternative readings and their potential ideological implications.

MAKING MEANING IN REAL AND VIRTUAL PLACES

To understand multimedia, to learn how to be critical of its messages, and to teach others how to use it critically, we need not just a conceptual framework and a goal—we need research on how people do use them and use them in a variety of different ways. We need such research not the least because readers differ in how we interpret signs and differ systematically by culture, age, social class, gender, sexuality, etc. Researchers as a social caste are not as diverse as the readers to whom multimedia messages are, or may be, addressed. We cannot rely on our own readings and intuitions alone.

How do we do research on multimedia use? What should we be seeking to learn? I want to propose a particular kind of research agenda. It is not by any means the only one, just the one that I have been trying to develop in my own thinking about these issues.

Too often in educational research we begin from an implicit input-output model: that direct relations of cause and effect should allow us to determine what causes what by seeing which changes in some input to the situation lead to which changes in outcomes. To some extent we adopt this logic because it has been successful in other kinds of inquiry where there are relatively direct cause-and-effect relationships, or at any rate relationships that can be modeled in this very simple way. We also desire it to be so because it promises us power and control. Social science of this kind is grounded in the dream of social engineering. By and large it is a dream that in the last century has failed, not simply because most experiments in social engineering have failed, but because social science has learned that its fundamental premise is simply wrong. Social systems have such complex interdependencies among multiple relations of cause and effect that no single input, nor even any realistically specifiable constellation of inputs, reliably governs any particular output. Moreover, what matters in the case of social systems is much less the principles that they all obey and much more their unique configurations. Every effort to control some outcome ripples through the system to produce unanticipated and often uncontrollable side effects. Every possible outcome depends not just on some small combination of inputs, but on emergent properties of the system as a whole that are not analyzable into separable component effects.

How then do we do research on social systems, or aspects of them such as the ways in which diverse people make diverse meanings with complex media artifacts in the context of an ecology of economic, political, and ideological processes? We replace an input-output model with a "tracer" model. We open the black box of intermediations that lie between any input and any output and we follow, or trace in detail, the actual processes by which outcomes are arrived at. We aim for an understanding of just how the specificities of any particular social system mediate chains of cause and effect that run through them. We do this for many different individual systems. We do it for particular systems at many different scales or levels of organization, and most particularly, across many timescales, across many orders of magnitude from moments to decades.

We hold on to a well-founded faith that having done this many times over we will not have to start again totally from scratch with each new system. We will learn to be sensitive to the kinds of mediations, the kinds of interactions, the kinds of differences that are most likely to matter to our domains of interest in the system. We will have, not a general theory that applies to all social systems, but a well-informed method of identifying what matters both more and less in the next system we study. We will arrive at something a little less like knowledge and a little more like wisdom.

Where to begin? I wish to begin with the study of how people make meanings and experience feelings across real time as they interact with rich, complex multimodal artifacts and environments. I am particularly interested in the role of material tools and perceptual signs, of real or virtual artifacts that can be written on and later read from (in whatever semiotic modality), of complex meaningful spaces in which we feel that we move and act, and of all the ways in which we meaningfully cumulate moments into longer trajectories and traversals. I want to know how we make meaning across time.

We could do this as a kind of micro-ethnography, following people moment by moment through a day, as they make sense of and react affectively to people, places, and things in the spaces of our lives. Obviously this is very hard to do, technically, ethically, and ultimately, methodologically. We could easily be overwhelmed by quantity of data and by the complexity of daily life. We would also encounter a peculiarity of the spaces of modern, or postmodern, life. They are not all physically real, or more precisely, they do not all have the same relationship between their physical and semiotic affordances. I am speaking here of "virtual realities." The worlds inside the television set, behind the movie screen, at the other end of the cell-phone link, on the computer screen, in the video game all have a material basis, but as meaning-worlds

they look and feel very different to us than does that material basis as such. We learn to enter virtual attentional spaces where we make meaning, act meaningfully, and experience feelings as if in a world very different from the immediate physical one. Entering a virtual attentional space is a truly amazing capacity of the human brain and body, and it takes so little to let the world we imagine affect us equally with the world we otherwise take to be real. As organisms we interact with our environments in ways that take so much for granted, that attend only to a few critical details, so that if we artificially mock up those details, we respond organically as if we were actually in the virtual world, more or less, depending on how well and how many of those critical inputs have been provided.

As a result, in the course of daily life many people making meanings and experience feelings not just in the immediate physical spaces of our ecological environment, but also in the virtual semiotic extensions of that environment, especially multimedia. There is no sharp and absolute transition from making meaning with a book or magazine to feeling emotionally, or even physically, part of a film drama or a vivid three-dimensional computer game. In modern life we have learned to cycle our attention among multiple, immediate, [multiple and immediate add complexity] and virtual attentional spaces. We can drive while talking on our cell phones (a bit risky). We can do e-mail or internet chat during meetings. We can carry on conversations while watching television, or play a computer game while doing internet chat with other players, in and out of our game characters. In fact we can juggle quite a few such activities at once. How do we follow people in and out of all these virtual worlds as well as follow them around in the immediate ecological world?

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Research is usually the art of simplifying a problem just enough—enough to make it possible to do it, but not so much as to make the results irrelevant to our real concerns. What if we begin research on multimedia meaning-making by following people only as they move in virtual worlds (and secondarily as they move into and out of them)? What makes virtual worlds feel real to us is that they provide many of the affordances for meaning and feeling that we are accustomed to in the non-virtual world. And that is just what we ultimately want to understand. The great advantage of virtual worlds for research is that they are readily recorded, and that traversals across different virtual worlds or among different media simulated within them are no more difficult to follow than traversals within a single virtual world.

Even if what we will see in meaning-making in and across virtual worlds will necessarily be drastically simplified compared to what happens in daily life, virtual worlds are increasingly becoming one of our dominant media for communication and for the learning and promotion of viewpoints and ideologies. What we learn about how people make sense and feel within them is useful and relevant in itself, for purposes of media design and critical media analysis, even if it is limited as a model for the complexity of these processes in the full course of daily life.

A useful place to begin such research, I believe, is with the study of highly immersive, three-dimensional computer games. They are complex, advanced multimedia that are far more successfully used by millions of students than are most present-day Web-based and stand-alone educational software media.

LEARNING FROM GAME WORLD MEDIA

Computer games (Rouse & Ogden, 2001) are the most advanced form of multi-sensory, multi-modal media with which students and the wider public have experience and which we know to be successfully designed and successfully used by a large population (Gee, 2003). They exemplify a medium in which affective elements of meaning-making are far more prominent than in

present-day educational media or on the Web. Compared to other significantly affective media such as film or television, they are far more interactive and afford opportunities for exploration, choice, (virtual) artifact use, movement through places, and selective shifts among attentional spaces—all of which are characteristic of complex, extended real-world meaning-making activities such as scientific research or architectural construction. Like good educational software and unlike the Web, film, or television, computer game media also allow us to create persistent records and world-effects (such as in-game notes and persistent changes in objects and environments) which help mediate cumulative learning over longer timescales than those of moment-to-moment game play.

Perhaps most importantly for research purposes, it is possible to create real-time, synchronized video and computer log records of monitor display, keystroke and mouse or joystick input, and user speech and action. It is possible in this way to follow user activity in entering the game world, acting and moving within the primary game world and among various subsidiary screens or auxiliary attentional spaces, communicating within and parallel to the game world action (e.g., to other players, in game and/or in side-channel chat online or face-to-face), and on leaving the game world. Ideally we would also like to observe how people integrate or cumulate in-game meaning-making activity and meanings made with out-of-game life activities and identities. We would like to study real and virtual communities of people who share in multi-player games and persistent world games. We would like to understand class, gender/sexuality, cultural and subcultural differences in which games people play, how, and why; the kinds of meanings they make and feelings they experience; and what persistent learning effects result. But we need to take such an ambitious agenda one step at a time.

We are not going to be able to do sophisticated, reliable, or useful research on how to adapt features of computer games to develop advanced educational media unless we first understand the basic meaning-making practices people employ in these complex virtual environments. We need to understand:

- How linguistic and visual-graphical modes of meaning-making are integrated.
- How dynamic, cumulative meaning-making in real time differs from making meaning with static images or text.
- How the affective components of in-game experience play a role in meaning-making and in the sense of immersion or presence in the virtual world.
- How we integrate interactions with characters, artifacts, and features of places in making sense in the game world.
- How we navigate spatially in-game in relation to meanings and feelings.
- How we cycle our attention among multiple attentional spaces available in the virtual world and between the virtual and the real world.
- How we communicate with real and virtual others in-game and in parallel with game activity.
- How we characterize and understand our own in-game actions in retrospect when we are out of the game.
- How we cumulate meanings and feelings across multiple gaming sessions.

These are, I believe, the basic research priorities for the initial-phase educational research on computer gaming. The outcomes of such research can help guide the design of new generations of educational software that can both capitalize on the game-based multimedia experience

of so many students and mediate for them the transition to far more complex discipline-based multimedia practices.

In order to pursue this basic research agenda efficiently, we need to mostly defer to a second phase of research consideration of a number of equally important issues:

- How do single-player and multi-player gaming experiences differ for various game genres?
- How do we communicate, cooperate, and collaborate with other players in multi-play game play?
- How does massively multi-player online persistent-world gaming differ from gaming which lacks these features?
- How do gaming activity, meaning-making, and experienced feelings differ among users/ player/learners according to social class, gender/sexuality, and cultural/subcultural differences, both typically and atypically?
- How do people integrate in-game meanings, feelings, activity patterns, relationships, and identities with out-of-game life?
- How do we coordinate our multiple, parallel engagements with diverse attentional worlds, including game worlds, film and television worlds, work worlds, school worlds, online and software-mediated attentional spaces, etc.?

It should be clear that we cannot entirely set aside these issues even in the initial research, but while being thoughtful about them, a focus on the first set of research issues I've identified seems to me the best way to prepare ourselves to investigate these further issues in an informed and effective way. Our purpose in this research should not only be to guide the design of the next generation of advanced educational media, but also to ground a complementary critical multimedia literacy curriculum. There is nothing about which students need to be more critical than the media through which they learn, whether in school or in the rest of their lives.

THE POLITICS OF CRITICAL MULTIMEDIA LITERACY

The time is past when serious scholars can pretend to have no politics. We make value choices at every stage of our work as researchers, speakers, writers, and teachers. If we take no special thought about these choices, then we naively reinforce the value choices of others, and with them, the interests of institutions and social sectors that share responsibility for the inequities and injustices in our own society. If we feel the need for critical literacy, for a critical multimedia literacy curriculum, it is because we do not trust the messages carried in our pervasive modern media. It is not just that we may be skeptical of their facts, we are also wary of the values and assumptions they purvey. None of us, or our students, can make free and democratic choices about the kind of world we want to live in if we lack the tools of critical multimedia literacy.

For this reason, research in related fields, such as critical discourse analysis (Fairclough, 1995; van Dijk, 1998; Wodak, 2000) and critical media studies (Hall & Evans, 1999; Mirzoeff, 1998), has recognized that we cannot simply study media as artifacts and multimodal texts, not even with the addition of studies of how people read and use them. We must also inquire into their conditions of production, their institutional origins and functions, their circulation in the modern economy, and to whom their benefits accrue, directly and indirectly, economically and politically. Who creates mass media, youth media, and educational media? And who does not? What institutions and what sectors of society benefit most and in what ways from the production, sale, cir-

culation, and consumption of multimedia? We are not asking these questions out of pure academic curiosity, and our students would not be much interested in this agenda if that were the only reason for it. We undertake this inquiry because we believe that we will uncover at least one component of the covert workings of injustice and the perpetuation of privilege and anti-democratic power in our society.

To be critical, however, is not just to be skeptical or to identify the workings of covert interests. It is also to open up alternatives, to provide the analytical basis for the creation of new kinds of meanings which can embody the hopes and dreams of people who do not choose to accept traditional literacy conventions, commercial genres, or the rational-consumer model of the future. A critical multimedia literacy curriculum will not be successful with students if it is only about analysis and critique. The dismal history of similar efforts to teach critical television viewing provides a clear warning. Critical multimedia literacy needs to be taught as creation, as authoring, as production—in the context of analysis of existing models and genres. We need to help students see how they could create multimedia different from the media that are sold to them, or offered "free." In the age of television, with rare exceptions, it was not possible to teach media production, and even when the media were produced, they were not, in the students' eyes, "real television." Today, and in the near future, it will be much more realistic for all interested students to be critically creative with multimedia; to create with greater awareness that the genres and models they imitate have histories of serving particular interests and reinforcing particular beliefs and values; to create, when they choose, *against* those traditions as well as with them.

(Ed: If you don't punctuate with the semicolons, then the last two sentences are just fragments.)

Critical multimedia literacy is about all media. It is not an addition to studies of textual print literacy, it is a re-conceptualization of what literacy itself means now and in our students' future lives. It is as much about factual, scientific, technical, and bureaucratic literacies as it is about literate worlds of the imagination. It is as much about the rhetoric of persuading people regarding belief, values, and action as it is about presenting information or building virtual worlds. It will need to be articulated in relation to every other subject and area of the curriculum just as the current literacy curriculum does. Above all, it will need to be grounded in research: on how meanings are made across multiple media and modalities, on the role media play in the larger society, and on how to teach critical multimedia literacy not just as critique but as a resource for the creation of alternative practices, values, and lifestyles.

I am confident that the core intellectual tools exist to define and carry out successful research agendas for building a critical multimedia literacy curriculum. I think there are important social, intellectual, and political reasons for making this work a high priority. It is an effort to which many of us can and must contribute for it to succeed. What I have presented here is meant as one tentative articulation of this important enterprise. I hope that it will be joined by many others.

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