Afterword

TEACHING AND LEARNING IN A POLYMODAL, HYPERTEXTUAL AGE

This book began by asking readers to consider that transformative education needs to remain centered on human experiences, particularly in an age of digital information. Schooling in all its various forms shapes the narratives of those involved in the educational process. Teachers, students, parents, and administrators continuously interact in our school’s physical, metaphysical, and virtual spaces. The polymodality of digital texts provides explicit access to new forms of understanding, constructing, and reconstructing knowledge in formal, academic settings as well as numerous forms of its expression. This access has been discussed in various chapters, and it facilitates explorations of non-linear relationships between/within epistemological frameworks and gaps. Teachers and learners are able to create educational narratives and representations of what they know about content, life, and knowledge as personal and shared cautionary tales given life through digital technologies.

Within and beyond the school collective, the multi-textualities of media, technology, and social networking provide opportunities both structured and unstructured for multiple representations of the interactive nature of teaching and learning. In these spaces, individuals become involved in the on-going dialectic of construction, deconstruction, and the reconstruction of their stories as they interact with the stories of others and re/author new stories to meet a myriad of purposes. Like the divergent possibilities suggested in Borges’s (1964) metaphor of the labyrinth, we propose that digital technologies are tools to be used by teacher/learners across discourses and media, new or otherwise, to explore a multiplicity of experiences, purposes, and possibilities.

Examining what it means for us to live and work in an increasingly technological society, three important themes emerge from the chapters in this book: (1) digital technologies and cyberspace offer a means to build and explore non-linear relationship between individuals and ideas using polymodal hypertextualities; (2) various technologies facilitate the creation of new educational narratives and representations of the self as teachers and learners; and (3) the compulsion to incorporate ever newer technologies can be an impetus to further corporatize public schooling. Digital literacies and social inequalities are part of educational culture. Social structures, broadened in cyberspace and reinforcing certain digital literacies, involve aspects of power. As social structures, digital technologies contribute to a culture of empowerment or potentially of oppression.
There is contention among scholars regarding the emancipatory effects of digital technologies. As we read early in the book, proponents of digital technologies and, in particular, of the Internet believe that access to cyberspace gives users power through choice. Parry (2007) finds that as narratives and texts become digitized, the ability of the reader to act upon textual representations is increased. Supporting this notion, Landow (1992, 1997, 2006) posits that digital technologies allow new information to be produced in liberating ways. Yang’s chapter five on “activating the power of the crowd in a university classroom” illustrates this concept.

Users of digital technologies construct personal and practical meaning from the myriad of ideas presented in cyberspace. They may ask new questions and “tackle more complex tasks” (Murray, 1998, p. 7) and create answers that fit the moment. Working in cyberspace, these users do not read passively; instead, they actively search information, make connections between various forms of text, and develop understandings, personal and shared, across an array of sources. Thus, digital technologies provide new opportunities as well as new ways to empower users (Lanham, 1993; Bolter & Grusin, 1999). This empowerment comes from the capability of users to follow multiple hyperlinks to multiple texts based on interests and needs; then users can use digital technologies to create polymodal narratives of knowledge they have constructed/synthesized.

These possibilities in cyberspace have been compared to the effects of the invention of writing and the advent of the printing press (Burbules & Callister, 1992; Raschke, 2003). Despite fears of easy accessibility to information diminishing knowledge, the potential in these technologies lay in users’ actions and creativity. The printing press in the fifteenth century provided the ability for ordinary people to make meaning of primary sources as they questioned the veracity of the authority of church and state. Literature, fine arts, and philosophical discussions became part of a shared common discourse. It is clear to us that the emergence of digital technologies are having much the same effect as they increasingly provide open access to vast amounts of information today. However, the hypertextual elements of the Internet provide more than simply access to information; they also allow connections to be explicitly and implicitly constructed and shared. The difference is in the types of connections made possible, that is to say, the invention of writing and later with the printing press were expansions of access to existing representational structures. However, until the Internet and hypertext there was not a cognitive unification conjoining every medium and representation of knowledge (Raschke, 2003). The expansiveness of organized knowledge attained in the digital culture then implies and permits new senses of cooperation and links encouraging learning that was not possible in the past.

Hypertextuality in cyberspace creates opportunities for hyperlearning (Perelman, 1992), learning not received from a certain source or institution but constructed out of the resources available. We argue that schools, as institutions, cannot retain their hitherto almost monopolized position as distributors of knowledge (Krejsler, 2004). Hypertext acts as a lever empowering students to learn in school and out in the “telecosm,” the digital environment that “makes all knowledge accessible to anyone, anywhere, anytime” (p. 28). Digital technologies and access to information through cyberspace imply that learning and therefore teaching is less dependent on time and space (Giddens, 1991) as the virtual environment transcends such constraints adding another dimension to students’ learning experiences (Browne, 2003). Students are freed to learn whatever they want or need as long as they have access to cyberspace. One must be careful not to equate information with knowledge and learning because access to data does not necessarily mean access to knowledge or to learning.
Much like the 15th century, there are those who are less enthusiastic about hypertext and are skeptical of the promises for empowerment. They maintain hypertext does not empower users and may actually oppress them. Readers of older technologies (like this book) already make choices, and they have always made choices (Aarseth, 1997). Reading does not need technology and hypertext to liberate the learning process and literary experiences. Instead, hypertext and technology may in essence confine reading and thought. Aarseth (1997) contrasts hypertext to novels and Barthes’s (1975) concept of *tmesis*. A hypertext link is a single path between text chunks and is more authoritarian than the novel in which readers are able to skip, skim, to decide which books to read, where to begin and when to end without the aid of digital links. Hypertexts confine readers by forcing them to follow the connections of the author and “mistake the structure of somebody else's mind for [their own]” (Manovich, 2002, p. 61). Manovich (2003) maintains that the empowerment of hypertext is an illusion. Perhaps the digital textuality described by Landow (2002) takes us in a direction other than what we have meant by democracy to one that deals with concepts such as liberation in different ways and varying contexts. In the *Tractatus*, Wittgenstein (1961/1921) said how we use words defines their meaning. Reading hypertexts in cyberspace means readers must choose from the limited choices provided by hypertexts’ creators instead of the unlimited choices they personally create in other texts.

Active readers are often non-linear, they connect texts in ways that may seem random but have personally constructed meaning regardless of form, digital or otherwise. Therefore, the distinction should be made between the digital hypertexts read in cyberspace and the hypertexts formed in the mind of individuals who interact with the world. Digital technologies can provide individuals with a means to share their internal, mental hypertexts with others by creating digital versions of their connections. Despite the debate and its ramifications regarding readers’ interactions with text and their world, digital technologies have been woven into cultural reality by heterogeneous experiences in the digital multimedia environment (Castells, 2001). Hypertexting occurs all the time as individuals make connections to understand texts consumed in a myriad of forms. In the context of academic writing, scholars thread books and papers with hypertexts, linking other materials in the form of citations. Of course, these, what one might call, *elitist* hypertexts require readers to know the format of the links (e.g. APA) and have access to the connected materials. Digital technologies merely facilitate the sharing of internal hypertexts by providing a medium through which they can be revealed.

As technologies create spaces and opportunities for more diversification, segmentation, and interaction with textual forms, digital hypertext blurs the line between consumer and producer as individuals contribute to a “global hypertext” in vastly different manners. This global hypertext is not global in the sense of “a global village, but in customized villages globally produced and locally distributed” (Castells, 2000, p. 341). This is in part what we characterize as polymodal. Hypertexting in cyberspace allows many different communities, freed from limitations of distance, to form around the globe based on individual expression and experience in local contexts. Hypertext begins in the mind as individuals endlessly process culture and moves into cyberspace as individuals personalize their experiences online. Facebook is a prime example of these communities expanded to global levels in which individual users create their own social networks and use the Website as a medium for personal expression.
CRITICAL THEORY AND DIGITAL TECHNOLOGIES

According to Landow (1992), hypertext embodies critical theory, providing opportunities to test aspects of the theory concerned with textuality, narrative, and the roles of readers and writers. Critical theorists such as Freire (1970, 1973), Giroux (1995), and McLaren (1995) have long been concerned about the liberation and empowerment of the oppressed as the status quo becomes more entrenched. Social structures within public school institutions can be responsible for social inequalities even as digital literacies are engaged in cyberspace. They remind us that cyberspace in the classroom is not free of inequalities, and it contains structures of oppression just as it has systems for empowerment. As schools become more computerized, the 21st century classroom becomes the agent of real change, or at least the promise of it as a nexus of critical pedagogy involving social structures, inequalities, and elements of technologies such as online space and content.

The current banking concept of education controls thinking, action, and creativity and “educators who do not have political clarity can, at best, help students read the word, but they are incapable of helping them read the world” (Freire & Macedo, 1987, p. 132). Reading and understanding the world influences the reading and understanding of written language. Text is considered more than mere words on a page; it is intertwined with knowledge and the world, incorporating many variations of expression. This Freirian concept of text is comparable to Landow’s (1992) discussion on the expanding notion of text.

The banking model of education can employ digital technologies and online content to oppress rather than liberate, to deliver “knowledge” rather than allow it to be explored and created. Information is knowledge in such a model, a model employing the reduced notion of knowledge opposed by Lankshear, Snyder, and Green (2000) and discussed in the first chapter. Banking facts in students’ heads creates a society of compliant teachers and learners, and its present expression is to be found in Post-Fordism (Griffith, 2012). It views humans as adaptable manageable beings who simply need access to data; humans adapt to structures of domination and fail to fight for liberation due to a fear of the risks such a struggle would require (Freire, 1970). The oppressed, both teacher and student, become oppressed and oppressors instead of partners in common struggle for liberation. The teacher ceases to be a professional/intellectual who creates and becomes a tool of the colonizing state that oppresses, and the students becomes the compliant subject. The social structures accessed in cyberspace become structures of oppression and curricular control rather than structures of empowerment and professional freedom.

Curricular control through standardization of curriculum and curricular goals is accomplished and disseminated through cyberspace and school district computers (Apple & Jungck, 1998). Centralization of curriculum and teaching practices deskills teachers while control of automated systems and computer-mediated actions conceal the power of their human controllers (Kahn & Friedman, 1998). The actions of individuals involved in teaching practices, particularly teachers and students, are controlled by digital technologies. In order to affect meaningful and ethical change in educational settings, teachers and students must be empowered to produce and act through computers and digital technologies. Transformation and change together must be the goal, not “epistemological [mapping] of the world” (McLaren, 1995, p. 295). Critique enables the change of oppression and the construction of emancipatory subjectivities. “It shows how the seemingly disconnected zones of culture—including the privileges of Western intellectuals and the suffering of the subalterns—are in fact linked” (p. 295). Rather than merely identifying cultural zones and worlds, linkages must be explored to reveal connections and create emancipatory actions. Digital literacies and digital expressions of internal hypertexts emphasize the connections and linkages of cultures as production inspires action.
Our modern, or perhaps postmodern oppression, pales in comparison to the oppression experienced by American slaves. There are important lessons to be learned from history and more attention given to the warnings concerning knowledge, self-perception, and technology (e.g. Apple & Jungck, 1998; Provenzo, 1992). Freire (1970) discussed the control of knowledge as a means of preserving power and oppression, and since then voices have cautioned the use of computers for their ability to control knowledge.

Douglass (1845/1995) in his autobiography, *Narrative of the Life of Frederick Douglass*, explains the maintenance of his oppression through control of knowledge by the system. As a slave, he was deceived into an abusive belief of freedom that caused him to return to the “arms of slavery” being disgusted with liberation. This “mode of treatment is part of the whole system of fraud and inhumanity of slavery” (p. 45); knowledge and experience is constructed by the empowered to convince the oppressed to remain in the status quo. Douglass illustrates the power of self-perception and control of knowledge to imprison individuals.

Slavery has since been abolished, while imprisonment has become a metaphor used to describe aspects of modern society and its exercises in controlling power and knowledge (e.g. Foucault, 1977b). Visibility of individuals leads to power being increasingly centralized and contained at an individualized level. Johnson (2010) provides an example of this in his report on law enforcement agencies that gain access to applicants’ social network accounts to investigate job candidates.

Foucault (1977b) argued that all aspects of society were linked by supervision of some humans by others to ensure acceptable norms of behavior. In schools, the “unequal gaze” of administrators to teachers cause the “internalization of disciplinary individuality” (ibid, p. 3). If this is the case then it can be argued that people are less likely to struggle for emancipation if they believe they are being watched. The electronic dossiers of individuals for “universal, tyrannical womb-to-tomb surveillance are causing a very serious dilemma” (McLuhan & Fiore, 1967, p. 12). Like never before, people are being watched and knowledge controlled by those in power, a process facilitated by digital technologies and cyberspace.

**CRITIQUE THROUGH DIGITAL LITERACIES**

The empowerment of teachers through critique as defined in critical theory must involve aspects of digital literacies, which have become more integrated into the classroom. In the rhetoric calling for teacher empowerment or more management and accountability, the influence of the computer and digital technologies cannot be ignored (Apple & Jungck, 1998; Landow, 2006). The computer has become a symbol of the quality of education children receive (Bromley, 1998). It is perceived to be a neutral tool with no connection to lines of power, and it is assumed that all technology enhances education and benefits teachers. Yet as noted, there is a need for caution as computers are increasingly added to the classroom (Apple & Jungck, 1998). “Computers can be dangerous” (Selber, 2004, p. 133), and users should be able to recognize the way power circulates in technological contexts.

Though computing technologies could support independent action and variety, in practice, the tendencies of centralization and standardization predominate (Bromley, 1998; Apple & Jungck, 1998). In fact, technology aids the monitoring and visibility of teachers similar to the surveillance in the Foucaultian prison model (Foucault, 1977b). The computer can “operate as a tool of surveillance and control” (Provenzo, 1992, p. 186). In this context of records and information about individuals, digital literacies become increasingly circumscribed and controlled. In fact, identity of unaware users can be even more defined and confined by technologies and cyberspace (Palfrey & Gasser, 2008).
However dire these outcomes may seem, digital technologies have the potential to positively influence society and empower the oppressed rather than contain through centralization and surveillance (Aronowitz, 1992). Mass communications and computerization provides measures of counter-surveillance to individuals allowing access to a variety of information previously controlled and unavailable. Despite efforts to quarantine the use of computers to conventional areas, individuals in society use them to transform the nature of information and knowledge. New content emerges from the old to shape culture as individuals use online texts and media to remix and create (Lessig, 2004, 2008). It is through creating online content and identities that people are beginning to author and transform not only the content but also themselves (Palfrey & Gasser, 2008).

Regardless of one’s attitude towards the effect of computers on society, and remembering Alvermann’s (2008) caveat of turning our backs on the inevitable, technology has permeated our society and cannot be ignored. The computer is a powerful tool for creativity and productivity (Provenzo, 1992). The PEW Internet and American Life Project (Lenhart, et al., 2007) reports that blogging, working on Webpages, and remixing online content to create new text are central activities to young Americans. In this study, released December 2007, of 935 adolescents between the ages of 12 – 17, 93% used the Internet for social interaction. Up from 57% in 2004, 64% created content on the Internet similar to hypertexts. As Castells (2001) contends, “The Internet culture is the culture of the creators of the Internet” (p. 36), creators of not only infrastructure and programs but also of information, files, hyperlinks, and any other online text. Students have become producers of online content and creators of Internet culture.

**Instrumentality**

Creating content in cyberspace is not necessarily empowering. Neither liberation nor oppression are inherent characteristics of the medium; they are outcomes of purposes (Johnson-Eilola, 1991). Online content can confine or liberate. Conservative online spaces provide a limited number of connections with a predictable outcome while anarchistic spaces provide access to all information and content. The former confines the reader, the latter empowers at the cost of attaining social action and goals due to its expansiveness and unpredictability.

As the computer has become a symbol of quality education (Bromley, 1998), it seems online content has become a symbol representing liberation; yet it still contains and reinforces lines of power. Online content can be an agent of change, but it can just as easily be an agent of oppression, “a way to uphold the status quo of current social conditions” (Johnson-Eilola, 1991, p. 9). Johnson-Eilola suggests that we begin to examine digital texts used in schools and “look beyond the text to envision and enact change outside of our classrooms” (p. 9).

To explain reading and writing digitally, Lanham (1992) asserts that one must go back to original thinking about reading and writing to “the rhetorical paideia that provided the backbone of Western education for 2,000 years” (p. 243), to return to the thinking about words and how they are used. Plato (385/2001, 370/2001) discusses the technology of writing as it pertains to spoken language and knowledge stating that it can be dangerous and must be made to serve a higher, more natural truth (Plato, 360/2001). In this instrumentalist view, language/writing/technology is a tool to convey meaning contained elsewhere. A reader must not be seduced by the rhetorical flourishes that disguise the instrumentality of digital literacies. Instead, a reader must realize the tool for what it is and not take it seriously as though it had contact with truth.
The Toronto School, discussed in the works of McLuhan (1962, 1964) and Ong (1989), critiques all forms of communication as more mediated, more technologized than the spoken form. Online technology has serious limitations in its portrayal of reality. What can be said is grounded materially in modes of production (McLaren, 1995) and in questions of human need. Each is occluded by ideology, which the elite reproduce in the oppressed (Aronowitz, 1993; Freire, 1970). In the new media, digital representations are judged on their ability to portray reality (Parry, 2007). Readers of online content must realize that the representation is a mere tool to be used well or poorly for communication of ideas not portrayal of reality or truth. Lanham (1992) concisely sums up by writing, “Do not blame the medium for the message” (p. 243).


Even though this may not be the whole story, McLuhan and Fiore (1967) contend that “the medium is the massage” (p. 26). Media alters the environment and the way the world is perceived. By massaging perception, media transforms thinking and action. “Societies have always been shaped more by the nature of the media by which men communicate than by the content of the communications” (p. 8). Online contents, as media, are environments and extensions of human faculty.

**IN SUMMARY**

In the book you have read, the authors have philosophically and practically explored the role of digital technologies in educational endeavors. Throughout the concepts presented here, we have repeatedly asked readers to remember the complex humanity inherent to learning, to keep in mind the social structures containing lines of power and inequality in an effort to bring about ethical transformations. Giroux’s (1995) sentiments echo Johnson-Eilola’s (1991) comments on affecting change, which call for “a shift in language from its revealing function to its more active role as a productive discourse” (Giroux, 1995, p. 26). While digital technologies allow people to speak across and within differences, cyberspace also provides a means of surveillance of classroom action by others. Cyberspace can become a tool to consume language or produce it. McLaren (1995) encourages taking “human agency beyond the curator’s display case where lost histories are contained, itemized, and made unimpeachable by the colonizer’s pen and recover the meaning of identity as a form of cultural struggle, as a site of remapping and remaking historical agency with a praxis of liberation” (p. 296). Even though digital technologies can also become social structures for control and oppression, remixing multimodal curriculum can accomplish this remapping and recovery of the meaning of identity (Jenkins, 2006; Lessig, 2008; Palfrey & Gasser, 2008) as individuals author new environments and selves for a better world.
REFERENCES


