

## Chapter 10

### Using Digital Tools to Foster Critical Inquiry

Richard Beach and Bertram C. Bruce

Writing in a research paper she produced for a college course, Kathy Simpson (2001) says,

Being from a small community I found it intriguing to look at the effects of the Internet in small rural communities. Not only did I want to look at how the Internet has enabled people in remote places, but I also wanted to know what motivated them to use the Internet. Therefore, I went back to Collison and asked some questions and got some answers. (p. 1)

As a student at a major research university, Kathy had become aware of the diverse computer activities in which her fellow students had engaged prior to attending the university, and how those experiences differentially prepared students for university learning. She worked from an assumption that rural schools, such as the one she had attended, did not offer the same opportunities for participation in the information age that other schools afforded, especially those in larger areas, such as the wealthy suburbs surrounding major cities.

Kathy decided to conduct a survey of the high school students in her hometown. Although she learned there are only “75 people in its square block,” Collison’s high school has over 100 students, because it draws from surrounding communities and farm areas. Kathy expected to find “a lot of households without computers, not connected to the Internet, didn’t need them for class, and didn’t really care if computers were necessary.” When she was in the same school, just four years earlier, “technology definitely took a backseat” to farm and sports activities.

She was surprised to find that slightly over half of the students had a computer at home and over three-quarters of those computers were connected to the Internet. Moreover, in contrast to her own experience just a few years earlier, nearly half of the students had access to computers at school. When asked, “How many hours a week do you use the computer?”, over half checked “26-35” and six students said “over 35”; that is, four or more hours per day of computer use in a community she had seen recently as bereft of new technologies. This suggests a major shift in access to digital technologies, a likely shift in overall media practices, and at first glance an answer to the problem of the digital divide, at least as it applies to farming communities in the United States.

As she investigated further, Kathy found that things were not as rosy as they first appeared. When asked “Why do you use the computer?”, 32% of the high school students said “class work,” 23% said “research,” 75% said “surf,” 83% said “games,” and 21% said “other.” In particular, 70% said they would not use it to get local information, a fact that provided the impetus for Kathy’s own project to create a web site for Collison. Without denying the value of surfing and game-playing, Kathy felt that students in this school did not see the full potential of the Internet.

The major uses her group reported were individualized and receptive, e.g., surfing and game-playing. There was little evidence of active construction of the tools through programming, Internet radio, web page development, or other such activities. Nor did they report any use of computers as a means for constructing social networks, enacting social change, personal empowerment, creative production, or establishing and maintaining personal identity. These activities may have been just emerging, of course, or present, but not salient in a large survey.

But on the whole, the digital experience of these students looks quite different from that of many students in wealthy suburbs.

The responses of adolescents in this community remind us that access alone does not imply that young people have the same experiences; the ways in which computers are used mean more than whether someone is “wired” or how long they can stay connected. As Kathy says, “When going into this project I was concerned that most people were not connected and therefore were being left behind in the information age. But from this survey I see that they are being left behind because the technology is not being used in the schools for resources and tools” (p. 23).

What comes through unambiguously in Kathy’s study is that computer uses are evolving rapidly. The question that Kathy’s study raises, and the question we will examine is, How do adolescents use digital media as tools in ways that go beyond simply extracting information or playing games to engaging in the literacy practices involved in critical inquiry activities?

#### Participation in Mediascapes

As documented in this book, adolescents are increasingly and actively engaged with media as they participate in chat rooms, digital editing, zine production, interactive computer games, and hypertext/hypermedia productions. Their participation can take several different forms. On the one hand, adolescents take part in “mediascapes” that highlight performance as the “object of spectacle,” and treat experiences as part of seeing and being seen or attended to by others (Abercrombie & Longhurst, 1998). Audiences adopt a “possessive gaze” (p. 82) that focuses on surface images, style, and brands associated with markers of identity or status. They attend primarily to the images projected by organizations, products, companies, celebrities, politicians, and so on—images that are often confused with the realities of these worlds or people.

As documented in the PBS Frontline program The Merchants of Cool, adolescents are particularly concerned with projecting an image of being “cool,” a concern that shapes their consumption of products marketed as associated with being “cool.” Abercrombie and Longhurst (1998) argue that this emphasis on spectacle and projecting certain images of self leads to a high level of narcissism, or self-absorption and/or gratification. For Virginia Nightingale (1996), the experiences of the private everyday life have become controlled by a media culture in which those experiences are replaced by public performances and consumption. As a result, the ideal, unified self of the "individual personality" is now dispersed across a range of loosely defined, transitory alliances. In Nightingale’s words:

[M]edia engagement increasingly transposes everyday life to a public ‘out there.’  
Everyday life has become synonymous with what’s on television or radio, what’s  
in the newspapers or magazines, what’s on at the cinema or what’s in the shops.  
All that is left is the person finding a way ‘to be’, operating electronically and  
commercially programmed pathways... (p. 141)

In perceiving the world as providing them with images of what it means to be “cool” or popular, adolescents are constructing their identities “in terms of the already existing self” (Abercrombie & Longhurst, 1998, p. 91), consistent with a status-quo commodified, consumer culture as opposed to new, alternative versions of the self consistent with visions of new forms of social action and justice. As James Gee (this volume) argues in his chapter on the Millennial Generation, adolescents may be less open to alternative, diverse cultural experiences or values that challenge their sense of self constituted in the mediascape.

While adolescents may continue to use media to construct themselves according to the values

of a consumerist, narcissistic world, we would argue that their emerging participation in digital technologies portends the possibilities of alternative ways of constructing identities. Many adolescents are turning away from the represented worlds of much of broadcast media, which “created a world awash in events but largely devoid of shared experiences” (Travis, 1998, p. 114) to participate in shared communal experiences mediated by digital tools.

### Characteristics of Digital Tools

In contrast to the case of commercially produced television, radio, or teen magazines, adolescents can assume active roles in using new digital tools. These texts often transcend or challenge current hegemonic consumerist notions of self. For example, in instant-chat rooms or “Buddy-chat,” one is able to employ stylistic or “double-voice” features that serve to mark oneself as a certain “kind of person” (Hicks, 1996; 2001). In interacting with others, adolescents are continually constructing their identities through how they interact with both immediate, familiar audiences and distant, unfamiliar audiences. Through sharing their opinions, beliefs, and ideas with each other online, adolescents are communicating certain ways of valuing that are consistent with being certain kinds of persons in certain types of social worlds (Hicks, 1996; 2001). Valuing certain social practices entails adopting a certain stance toward these practices consistent with one's beliefs and attitudes, a sense of “oughtness” (Hicks, 1996) that guides decisions, plans, and interactions with others.

What is central to Internet-based communication is the experimentation with not only different voices and roles, as documented by Sherry Turkle (1995) and others, but also the adopting of certain stances and beliefs in reaction to others’ stances and beliefs. While much of the chat in computer-mediated communication is superficial, it is also the case that these chat

environments create contexts that allow participants to share their opinions, beliefs, and ideas relative to others' alternative opinions, beliefs, and ideas. Through this interaction with others, participants construct identities by performing in ways that position them in relation to these others' alternative positions; thus, "it is in the connection to another's response that a performance takes shape" (McNamee, 1996, p. 150). As Bakhtin (1981) argues in his concept of "answerability," people's utterances reflect their relationships with other potential, anticipated reactions to their own utterances. People are "'addressed' by and 'answering' others and the 'world'...answering (which is the stuff of existence), the self 'authors' the world—including itself and others" (Holland, Lachicotte, Skinner, & Cain, 1998, p. 173). They engage in an internal dialogue between an "I" as self and a "not-I" in ways that differentiate the self from others. For example, in their study of Sam, a 13-year-old female participant on AOL Buddy Chat, Cynthia Lewis and Bettina Fabos (1999) found that Sam experimented with a range of voices in order to build social ties with both her friends and with strangers. In talking with her close friend, Sam adopted what she described as a "softer and sweeter" tone, while giving shorter, more pointed answers to peers with whom she did not want to talk. She also mimicked the language of another participant who accidentally got onto her buddy list to maintain the connection:

Sam: This girl, she thinks I'm somebody else. She thinks I'm one of her friends, and she's like "Hey!" and I'm like "Hi!" and I start playing along with her. She thinks that I'm one of her school friends. She doesn't know it's me. She wrote to me twice now.

Bettina: So she's this person that you're lying to almost ...

Sam: Yeah, you just play along. It's fun sometimes. It's comical. Because she'll say something like "Oh [a boy] did this and we're going to the ski house," or whatever, and I'm like "Oh God!" and like and I'll just reply to her. I'll use the same exclamations where she uses them and I'll try to talk like they do. (Lewis & Fabos, 1999, p. 7)

Sam and her close friend, Karrie, both find that they are less socially awkward on the Internet chat than in face-to-face conversations, particularly with boys:

Sam: You get more stuff out of them. Yeah. They'll tell you a lot more, cause they feel stupid in front of you. They won't just sit there and...

Bettina: So it's a different medium and they can test themselves a bit more and...

Sam: So they know how we react and they don't feel stupid cause they don't have to think about the next thing to say. I can smile [using an emoticon, which is a visual icon representing an emotion] or I can say something to them. (Lewis & Fabos, 1999, p. 8)

Sam's and Karrie's participation in IM points to the key role of language uses that serve to position or mark relationships with others. Or, as Lankshear and Knobel (this volume) argue, adolescents learn to employ "public media" to "create an opportunity to gain attention" in ways that achieve "'immediate effects' (rhetorical, quirky, stunning), but much will likely be predicated on having something to say that is worth hearing, something to sell that is worth buying, and so on." They may use digital tools to engage in "culture jamming"—activities in which they critique, spoof, and otherwise confront elements of mainstream or dominant culture

—for example, using hypermedia to morph, alter, or re-create images in order to parody, ridicule, or resist dominant cultural practices.

A second characteristic of digital tools is that they, like any tools, operate within larger institutional or cultural systems. Sociocultural theorists posit that identity is mediated through the uses of tools that are themselves grounded in cultural or historical contexts (Cole, 1996; Glassman, 2001). The uses of various signs or images functioning as class, gender, racial, or ethnic markers on the Internet, for example, derive their meaning from cultural and historical activities. Moreover, these uses of tools are also continually changing as new uses are discovered for a tool that then changes the nature of the tool. The early bamboo poles employed in pole vaults evolved into fiberglass poles that provided pole vaulters with greater spring for clearing the bar. As the system changed—as pole vaulting itself changed within the world of track—new uses for a tool are found. For example, new ways of exploiting the pole to gain a greater spring are discovered (Wertsch, 1998).

Facing the conflicts, contradictions, tensions, and double-binds operating in systems, participants create new tools. For example, a group producing the female zine riot grrrl constructs an organizational network designed to promote their music. Marion Leonard (1998) describes the evolution of this social world as part of an expanding network of activities:

Riot grrrl is a feminist network which developed in the underground music communities of Olympia, Washington, and Washington, D.C. The initiative was promoted by members of the bands Bratmobile and Bikini Kill who sought to challenge sexism in the underground music scene and encourage girls and women to assert themselves....As women and girls began to identify with this idea, riot

grrrl networks spread across the USA and Britain...Female audience members began by challenging the traditional division of the gig environment into gendered spaces, where women were largely absent from front of stage. Others grrrls formed bands, wrote zines, arranged meetings and organized events to introduce girls to music making. (pp. 102-103)

In the case of riot grrrl, the participants were driven by the object or purpose of establishing the legitimacy of their own music within the context of a male-controlled world. Tools are therefore used within an activity to construct new cultural practices that change or transform a system. Vygotsky (1978) argues that the history of use of a tool is a social activity that mediates social activity through that history. For example, digital tools are being used to transform or "re-mediate" more traditional forms of media—television, film, radio, or print texts (Bolter & Grusin, 2000). A USA Today or CNN web page "re-mediate" television news by constantly updating information, engaging users through polling, and feeding news to email users. The changes transform how users experience media as a form of "hypermediacy," which Bolter and Grusin define as a fascination with the media form itself and the ways that its immediacy of presentation evokes an immediate, emotional response. Users of hypermedia may then equate this emotional experience with their lived-world experiences, or, in some cases, as a substitute for or even preferable to those experiences, a transformation in how users construct their identities and worldviews (Turkle, 1995).

Similarly, personal digital assistants (PDAs), tools for organizing one's time and accessing information (something traditionally associated with work), are now being used to organize both work and home life, breaking down the distinctions between the systems of work and home life

and blurring the lines between work time and play time (Geisler, 2001). In one study (Darrah, English-Lueck, & Freeman, 2000), “Participants [saw] themselves as ‘doing family’ using managerial strategies and technologies developed at work to manage an increasingly complex home life” (Geisler, 2001, p. 321). Digital tools such as hypermedia or Internet chat can also serve to interrogate status quo systems in ways that create new systems because they have the potential for mobilizing support for change through reaching large numbers of people, as was evident in the use of the Internet in the post-communist conflicts in Eastern Europe.

### Fostering Inquiry-Based Learning through Digital Tools

One of the important objects of education is to help students learn to reflect on and interrogate their lives through inquiry-learning activity. As others argue in this book, adolescents can use digital tools to achieve this object. Any definitions of inquiry-based learning are themselves products of inquiry—intellectual tools—as Dewey (1956) would say, for further explorations of how we teach and learn. For the purposes of this chapter, inquiry-based learning indicates a broad set of practices in which learners extract meaning from experience as they engage in efforts to address questions meaningful to them.

Dewey (1956) describes four primary interests of the learner: investigation—the child's natural desire to learn; communication—the propensity to enter into social relationships; construction—the pleasure in creating things; and expression, or reflection—the desire to extract meaning from experience. Dewey saw these as the natural resources, the uninvested capital, “upon the exercise of which depends the active growth of the child” (p. 47). But, as Dewey (1956) recognized, schooling is not just about the individual. It is the coming together of the

child's interests with those of the society. The disciplines we study in school represent centuries of collective thought as well as the interests of the larger community in maintaining itself by communicating its knowledge and values to the next generation. Moreover, the individual's engagement with social critique and action is central to personal growth.

These ideas were central for progressive educators in their conception of the rapidly changing social fabric as both a challenge and an opportunity for democracy. They understood that democracy means active participation by all citizens in social, political, and economic decisions that affect their lives. Inquiry under this view is not simply the process whereby an individual learns (the development of a romanticized inner child), but rather, the means for a democratic society to continually renew itself. Education of engaged citizens involves supporting individual development based on unique abilities, interests, ideas, needs, and cultural identity, and promoting a critical, socially-engaged intelligence. This linking of social critique and action with personal development is why many use the term critical inquiry to indicate more than accumulation of inert knowledge.

### The Cycle of Critical Inquiry

The cycle of inquiry is a way of thinking about how curricula relate to learning that Dewey articulated a century ago, but which may be even more relevant today. Rather than thinking of knowledge as static and of the learner as an empty vessel whose function it is to accept as much as possible of that pre-defined material, Dewey saw the learner as an inquirer, who learns through working on problems that are meaningful in the present circumstances. At the same time, the resources—objects, books, web sites, curricular materials—that the learner uses are themselves representative of inquiry. As he did for so many other dichotomies, Dewey argues

that books, curricula, disciplines, and technologies should be seen as representations of on-going inquiry, based on collective and historically-based understandings, but not fundamentally different from that of the individual learner. This is known as "psychologizing the curriculum". Aspects of curricula, even the driest textbook, can then be viewed not in opposition to the learner or to inquiry, but rather as another point on a continuum of inquiry (University of Vermont, 2001).

Figure 1 places the primary interests of the learner in the framework of a cycle of inquiry (Bruce & Davidson, 1996). For any question or problem, one may then think of activities of asking, investigating, creating, discussing, and reflecting as the means for furthering the inquiry.

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Literacy practices employ basic aspects of the inquiry process: asking and investigating through formulating questions, issues, dilemmas, or “wonderings;” creating through contextualizing social worlds and system; and discussing and reflecting through critiquing and transforming social worlds (Beach & Myers, 2001; Short & Harste, 1996). These inquiry strategies can be mediated through the uses of web-based digital tools that function as a “knowing” rather than “knowledge” (Dewey and Bentley, 1949). Adolescents write these web-based sites, where "write" means to produce text, images, sound, video, and interactive elements in hyperlinked documents. They also read them, where "read" means to observe, study, and interact with them. Through this writing and reading, they are engaged in processes of formulating issues and questions, investigating, creating, discussing, and reflecting—all the

elements of the inquiry cycle shown in Figure 1. Learners today can be a part of these collective, collaborative activities, and not merely passive participants destined to do no more than absorb the work of others. The web is not a necessary technology for that shift in roles, but it invites that shift in a way traditional media do not.

We turn now to examples of how digital tools are being used to engage adolescents in literacy practices that are part of the cycle of critical inquiry.

#### Asking and Investigating to Discover Questions, Issues, or Dilemmas

Inquiry instruction revolves around students' and/or teachers' questions, issues, or dilemmas, (Short & Harste, 1996). Framing instruction in this manner mirrors adolescents' attempts to cope with the complex, ill-defined problems, issues, and dilemmas in their everyday lives. Lankshear and Knobel (this volume) point to an example of adopting an interrogative stance through "scenariating" or "coming up with original or fresh ideas of the kind needed to attract and sustain attention [by] asking important 'what if?' questions." For example, adolescents may be caught in a dilemma in which they have to decide whether to continue a relationship their parents don't approve of or seek to please their parents by ending the relationship. Or, in responding to *Romeo and Juliet*, they may examine reasons for *Romeo and Juliet* being caught in the same dilemma of competing allegiances (Mosenthal, 1998). Adolescents often have difficulty knowing how to cope with situations that do not lend themselves to simple, easy solutions. Rather than throwing up their hands in despair, they need some strategies for systematically and thoughtfully coping with ill-defined problems, issues, and dilemmas in their everyday lives. They need to learn how to step back and identify reasons why they have certain concerns or why certain solutions may not work.

Adolescents also need to perceive issues as involving multiple, competing perspectives, as opposed to the often simplistic treatment afforded issues in the media or in political rhetoric. In their book, Learning to Rival: A Literate Practice for Intercultural Inquiry, Linda Flower, Elenore Long, and Lorraine Higgins (2000), posit the need for students to explore alternative, multiple perspectives or rival hypotheses on social issues. For example, in examining the issue of gangs and gang violence, first-year college students at Carnegie Mellon University met with and interviewed gang members, social service workers, community members, educators, and law-enforcement personnel regarding their perceptions of gang-related issues. They examined the meanings of various conceptions or categories applied to gangs as “dangerous,” “crime-ridden,” “drug-pushers.” In the process, they discovered that there were a range of different perceptions and explanations for gang practices that reflected different beliefs and attitudes about gangs. Contrary to some of their stereotypical notions about gangs, these students discovered that the issue was far more complex than is typically portrayed in the media and that different people representing different community constituencies have different perspectives on the same issue.

Students inductively identify these questions, issues, or dilemmas through immersion in a social world, culture, or text, adopting a dual “participant/observer” ethnographic perspective, in which one is both participating in an experience, world, or text and simultaneously observing and reflecting on that participation as an outsider. Dennis Sumara (1996) argues that, in contrast to superficial “touring” instructional approaches, a “dwelling” mode involves “living in a place with others with an attitude of caring and attention” (1996, p. 160). Adopting an ethnographic perspective involves perceiving phenomena as constituted by certain cultural norms or

discourses. Adolescents, as fish in water, may have difficulty perceiving themselves as being in a particular school, peer group, or community culture.

To recognize the ways in which they are operating in a culture, adolescents may use various digital tools to collect, record, and analyze patterns of social practices that suggest the operation of a culture. They may use digital tools that simulate social worlds such as Sim City 3000, Populous, and Alpha Centauri to define problems or issues associated with housing, transportation, shopping, business, schooling, waste disposal, and day care. For example, in Sim City 3000, if players do not zone for incinerators or landfills, trash piles up in the city (Taylor, 1999). They may also use digital tools to collect data. For example, they may take field notes using a digital recorder or laptop computer, recording observations and reflections on those observations. Or, they may interview participants and then transcribe the interviews themselves by dictating into digital recorders. They may then use qualitative research software to code and analyze these data (e.g., analyzing the uses of certain ways of talking or addressing peers. Or, students may take digital photos or videos of a particular site (Denzin, 1997; Prosser, 1998) Posting these images may then evoke further reflection and questions about the phenomena portrayed.

Students may study issues associated with uses of digital tools themselves and the ways in which these tools function to reshape print or video media. For example, students may examine the relationship between truth or authenticity and “reality” as constituted by “hypermediacy” (Bolter & Grusin, 2000). A case in point is Nick, a State College High School student, who conducted a study of an Internet chat room and found that participants in this

virtual community judged each other in a manner different from that in real-world contexts. In Nick's words:

The Internet has a certain value system that differs from the real world. Online, we choose not to judge people by what age, race, or gender. We choose to judge one another by the way we "act" online, the way we respond and talk to others. In this sense we are all equals, and we show that by giving others a chance to make a good name of themselves. Although there are those who could care less about how others feel and they make the Internet a potentially dangerous place (Beach & Myers, 2001, pp. 172-173).

As well, students may search the web for information or different perspectives on various issues. Evaluating the validity, legitimacy, and verifiability of this information can lead to further questions and investigations.

#### Creating to Contextualize Topics or Issues

One of the book's key themes is that the uses of digital tools, as with any literacy practice, are unique to how they are used in specific social contexts and events. From the perspective of activity-theory, the ability to frame or contextualize topics or issues in terms of different components operating in social worlds or systems is central to inquiry learning (Beach & Myers, 2001; Engestrom, 1987). Students learn by examining how the uses of tools are driven by various components (objects/motives, roles, rules, beliefs, and traditions/history) within a world or system. For example, the female adolescents in Michele Knobel and Colin Lankshear's chapter [this volume] use zines as a tool to achieve the object of challenging sexist norms through adopting the roles of inventive artists or subversives, employing graphic and language

features consistent with the norms of the zine genre, conveying anti-sexist beliefs, and operating within a community tradition of zine production. Learning to use digital tools effectively involves the ability to contextualize their use within each of the following components:

### Objects/Motives

Social worlds or systems are driven primarily by objects or motives; that is, they are designed to achieve some object or outcome or fulfill some motive (Engestrom, 1987). The various Internet tools described in Colin Lankshear and Michele Knobel's chapter [this volume] are used to attract attention to one's own message or image while at the same time fending off a system cluttered with competing messages or images. In contextualizing uses of tools, students may ask, "What's driving this world or system?" or "What's at stake here?" and "How are tools being used to achieve these things?"

### Roles

Within a social world or system, participants adopt roles or identities that are constituted by their uses of tools to achieve certain objects or motives, a central theme of this book. Within an inquiry framework, students use digital tools to study how roles and identities are constituted by participation in the social worlds or systems of peer group, family, school, workplace, community, as well as by participation in the virtual worlds of Internet chat rooms or computer games. For example, ninth graders at State College High School used a range of hypermedia tools to contextualize issues associated with peer relationships (Beach & Myers; (<http://www.ed.psu.edu/k-12/socialworlds/>) One student, Abby, studied peer groups in the high school by taking digital photos of groups in action during the school day. Using Adobe Photoshop™

she edited these images to grayscale and colorized specific objects that signified group belonging or exclusion. As Abby noted:

In one of my photographs there are a bunch of bottles sitting on a table in the cafeteria. One bottle is differently shaped and colored than the rest. This is meant to show that there is one girl at my lunch table who doesn't fit with our group. She doesn't drink Snapple like the rest of the girls, which capitalizes on the fact that she doesn't fit in. One of the most striking pictures is one of four girls all wearing the same style of Old Navy Tech Vest in the hallway outside of the bathroom. They are talking and laughing, and are obviously very comfortable together....My favorite picture is one of a group of girls standing together in the bathroom. This represents something that I call "the bathroom group". The bathroom group is an objective group that consists of pretty much anyone who comes into the bathroom to socialize. Every girl in there is from a different group, and yet the girls all mingle and talk. This is one of the best examples of an objective group because, although I know this sounds odd, no one is judged in the bathroom. (Beach & Myers, 2001, p. 117).

Through her hypermedia project, Abby documented the ways in which female adolescents move in and out of different peer group worlds, adopting identities consistent with the rules or beliefs operating in these worlds.

In their study of their video game playing, Justin and Brett noted that many young players of video games construct future possible identities through play:

[S]ometimes a young child will fantasize about being the basketball player or soccer star that they are controlling in the video game, and they will learn to love and idolize that player for the rest of their life. That is a way that video games shape a person's dreams or identities. (Beach & Myers, 2001, p. 176).

### Rules

Students contextualize the uses of tools based on rules or norms for what are considered to be appropriate, significant, or valid practices within a social world or system. For example, Internet chat rooms operate according to their own rules of “netiquette” in constituting appropriate topics, modes of decorum, and civility. Margaret Hamilton (1999) found that the Nancy Drew chat room formulated explicit rules discouraging users from providing full names or using “bad words” as judged in terms of the ideology constituting the world of Nancy Drew. Some of the State College ninth graders used SoundEdit 16™ software to isolate lyrics in popular songs and to represent the various aspects of relationships and identity within the social world of romance. One student contextualized her song clips to examine the norms operating in love relationships based on the expectation that “people care for other people by their words and actions” as well as the fact that “within each relationship some kind of conflict occurs.” (Myers & Beach, 2001, p. 541).

### Beliefs

Participants contextualize words, objects, and actions in terms of the beliefs or discourses operating in a world constituting objects/motives, roles, rules, and traditions (Gee, 1996; Lankshear, 1997). In a project focusing on the characteristics of effective versus less effective romantic relationships, five ninth-grade State College girls—Alyssa, Audra, Amanda, Kim, and

Alissa—created a video drama portraying couples' different beliefs about romance. In her essay about the video, Alyssa explained:

The relationships each portray their own set beliefs and morals. . . The difference is that the good couple communicated with each other. They also had organized places they could go where they could be together outside of school. The bad couple never communicated and they didn't go out with each other that much.

(Beach & Myers, 2001, p. 141)

To explore the ways in which the ideologies or discourses of sports define adolescent identities, a State College student, Stephanie, created a quicktime video containing a montage of images from magazines that portrayed how the media represents ways in which participation in sports is shown as marking one's identity in a peer group or community. As Stephanie explained:

For my final project I used the computer and scanned in pictures and added music to it. The social world I was portraying was sports teams while linking it to the social world of friends. In my final project I chose all the images from magazines for a purpose. I went through tons of magazines before I found them. . . When you play on a sports team one thing you should expect is for people to cheer for you and give you team spirit at your games. The very first image of the fans in the crowd was chosen because not only do you become friends with your team but you become friends with the fans as well. Every ones dream and desire is to win their game they are playing. One of my pictures fitted this thought. This picture

was of a baseball player sitting on the shoulders of his teammates because he won the game. (Beach & Myers, 2001, p. 99)

### Traditions/History

Participants contextualize a world or system in terms of its traditions or past history. As Kathleen McCormick (1999) noted:

This recognition of historical difference helps us in the present to question the apparent naturalness or universality of our own points of view: We come to see that there are changing beliefs and assumptions behind even such everyday activities as wearing jeans to class. Why, for example, does our manner of dress differ so dramatically from the dress of only one hundred years ago? What larger values and beliefs are revealed by the clothing that we wear? (p. 4).

Students may use digital tools to define hypertext links to information about traditions or historical developments, allowing them to contextualize current practices in a world or system based on past developments. For example, middle school students use Storyspace™ (Bolter, Smith, & Joyce, 1990) to construct hypertexts based on research on American history and culture (Patterson, 2000; <http://angelfire.com/mi/patter/america.html>). In writing a collaborative story about a slave captured in Africa, the students created hypertext narratives with links to information about slavery. In using Storyspace™ as a tool for making these hypertext links, students went beyond just presenting information about people and events to understanding people and events as shaped by historical and cultural forces (<http://www.npatterson.net/mid.html>; Patterson, 2000).

## Discussing and Reflecting to Critique and Transform Social Worlds or Systems

Digital tools can also be used to foster discussion and reflection on issues or topics in ways that encourage critical analysis and exploration of ways to transform a world or system to address an issue or program. The use of digital tools to construct hypertextual links between media or literary texts and cultural contexts can help students examine how they are positioned to adopt certain roles/stances or beliefs (<http://www.ed.psu.edu/k-12/culture>; Myers & Beach, 2001; Myers, Hammett & McKillop, 2000). For instance, Ann Margaret McKillop (McKillop & Myers, 1999) taught seventh graders to use StorySpace™ to link original poems, images, and quicktime movies. Although students generally made links designed to simply illustrate ideas in poems through images, in some cases, they contrasted texts in ways that created conflicts between different text meanings, resulting in their adopting a critical stance. In one case, a student contrasted her poem originally titled “The Springs” with an excerpt of a nature video of a bear catching and eating fish. She then changed the title of the poem to “The Crying Fish” to challenge the nature video’s portrayal of the bear’s actions. Students’ uses of hypertext production led them to critically examine beliefs and attitudes represented in texts and to resist the texts’ implied ideological stances. Moreover, sharing their productions with others led to further discussion and reflection on problematic aspects of these texts.

## Teachers’ Uses of Digital Tools

Teachers assume an important role in fostering critical discussion and reflection through modeling uses of digital tools and creating activities leading to critical discussion and reflection. They acquire skills involved in using digital tools through using tools that serve their own objects or outcomes—to improve their teaching within the education system.

### The Inquiry Page

Web-based sites can serve as a collaborative, community tool to help teachers engage in all aspects of inquiry. One such site, which makes the inquiry cycle more explicit, is the Inquiry Page (<http://inquiry.uiuc.edu/>). It is designed to help teachers across the curriculum share their successes and collective expertise (Bruce & Davidson, 1996; Bruce & Easley, 2000). A key function of this site is collaborative curriculum development. Teachers inquire through their access to resources on teaching and learning, which include quotes about inquiry teaching, articles, project links, curriculum units, and content resources. They communicate with other teachers through various online communication media. They construct their own versions of curricula using an online inquiry unit generator. They reflect on their experiences through sharing both literal and textual photos of their classrooms. In a similar way, adolescents use the site to engage in their own inquiries and collaborative activities.

In particular, the site offers both students and teachers a tool for creating online Inquiry Units. Each unit starts with a guiding question (or problem) and provides a space for users to describe the resources they find for addressing that question (investigate), the actions they take to answer it (create), the people they collaborate with (discuss), and their own analysis of their activities and progress (reflect). The user does this by filling out a web-based form. When the unit is called up again by the same or another user, it can be used as a guide for their own inquiries. A second user can spin off a copy of the unit, modifying it to fit new circumstances. Students can also do that, thus using the curriculum Inquiry Unit as a place for showing their own work. In this way, the site elides the lines between pre-established knowledge and knowledge-in-creation, between curriculum and student work, and between teacher and student,

framing all of these as ongoing inquiries. The inquiry unit structure provides a means for articulating some of the important aspects of inquiry, but it can be modified by the user to meet particular needs.

Users of the site may also share videos, photos, graphics, and texts showing people engaged in inquiry in different settings. There are site collections of writings on teaching and learning, links to resources in the Open Directory category on Inquiry Based Learning, and connections to various “inquiry partners”— projects, courses, and schools focusing on inquiry learning.

The Inquiry Page represents a new generation of web design that serves the social needs of classrooms, schools, communities, organizations, or workplaces to engage in critical analysis of problems, issues, or dilemmas. For example, communities are currently developing sites that allow citizens to discuss, debate, and even vote on issues facing a community. This is particularly useful for isolated, rural communities facing mounting social and economic problems (Carter, 1999). Where face-to-face interaction is difficult because of time and geographical barriers, web-based communication fosters increased participation by citizens.

Engaging in collaborative inquiry about a topic or issue, however, requires participants’ willingness to adopt tentative, exploratory stances as opposed to rigid or hard-line stances on topics or issues. As part of learning to engage in collaborative inquiry, a group of preservice English teachers participated in a WebCT class bulletin board, addressing various issues associated with education: teachers as role models, vouchers, censorship, testing, motivating students, and so on (Doering & Beach, 2002). In their postings, these teachers framed their ideas or beliefs as hunches or hypotheses—what Donald Davidson (1984) refers to as “passing theories,” and Reed Dasenbrook (2001) describes this way:

Everyone enters a communicative situation with a ‘prior theory,’ a set of expectations about the words the other uses means. However, because our prior theories never perfectly match one another, the prior theory with which each of us approaches any communication interaction never works perfectly. But this does not mean that understanding is impossible. What happens is that each side develops a “passing theory,” a modification of the prior theory to fit the particular usages of the person one is talking to. (p. 73)

This process requires what Dasenbrook (2001) describes as “interpretive charity” (p. 75). Rather than simply reifying or imposing one’s prior theories, participants are open to entertaining, analyzing, and integrating others’ beliefs into their own beliefs in ways that transform their beliefs.

In treating their beliefs as tentative or exploratory hunches in the bulletin board discussion, the preservice teachers invited others’ reactions as a means of verifying or validating their beliefs relative to others’ beliefs. For example, in discussing the issue of grading students’ writing, one preservice teacher formulated his position on the need to provide feedback during the entire composing process:

So, my two cents: I kind of see grading as a process that begins when the paper is assigned and ends when we hand back that last draft. Plus, it bears great weight (some insist that grading should be done away with in comp classes) in terms of the whole process, their process, of addressing and completing a writing assignment. Does this make sense to anyone? (Doering & Beach, 2002, p. 12).

In his positing, this preservice teacher hedges his comments with words such as “my two cents” and “kind of see.” He also notes that others hold different perspectives on grading. And, his final invitation, “Does this make sense to anyone?” implies that he himself is trying to make sense out of his own ideas about evaluating writing. Through participating in the WebCT bulletin board exchange, preservice teachers were learning to use a digital tool to discuss and reflect on issues—an experience they may then provide their own students.

In summary, we argue that digital tools are only as useful as the objects or outcomes they are designed to serve. While digital tools may be used to simply perpetuate consumerism of the “mediascape,” they can also be used to foster critical inquiry literacy practices of asking, investigating, creating, discussing, and reflecting. As envisioned by Dewey (1956) long before the advent of these digital tools, teachers still do assume a role in fostering inquiry leading to the development of thoughtful, engaged citizens. Through actively engaging in their own hypermedia or hypertext productions, students learn to investigate, discuss, and reflect on the meanings of texts in their lives.

As we argue, teachers assume an important role in creating contexts such as that illustrated by the Inquiry Page that serve to promote these critical inquiry practices. We close with some implications for teachers related to their uses of digital tools with adolescents in the classroom to foster literacy practices. In using these tools, teachers may want to consider the following questions:

- What objects or outcomes are being served by uses of these digital tools?
- What kinds of literacy practices and inquiry strategies are being fostered through uses of these tools?

- Are students using tools to actively produce texts or hypertexts in ways that lead them to interrogate those texts?
- Are these tools being used to reify or to challenge consumerist values?
- How are students contextualizing uses of tools in terms of objects/outcomes, roles, rules, beliefs, and traditions?
- Are tools being used to foster open, thoughtful exchange of ideas and beliefs in ways that lead to the development of new beliefs?
- Are teachers themselves engaged in uses of tools so that they can demonstrate these uses to students?
- How are tools continually evolving in ways that challenge status-quo systems and create new systems with new objects/outcomes and ways of constructing identities?

Figure 10-1. The inquiry cycle.

