

**Technology-Mediated Critical Literacy in K-12 Contexts:
Implications for 21st Century Teacher Education**

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Introduction

One of the foremost challenges for contemporary educators is acquiring proficiency with instructional technology and the conceptual frameworks that support its meaningful integration into classroom practice (DeGennaro, 2008; Keeler, 2008; Schrum & Levin, 2009). Without the experience and expertise needed to effectively engage with technology, pre-service and practicing teachers, if they use technology at all, tend to use it in superficial, low-level ways (Doering & Veletsianos, 2008). The resultant absence of meaningful technology integration in classrooms has led to a deep disconnect between the current generation of students who have spent their formative years immersed in technology (*digital natives*), and their teachers (*digital immigrants*) whose experience with and knowledge of the digitized world may be underdeveloped (Prensky, 2001). The research presented here examines the instructional possibilities afforded by technology-mediated, critically oriented subject matter instruction, and how those possibilities aligned or collided with conventional paradigms of teaching within K-12 educational settings.

Multimodal Literacy Practices

The role of mass media, communication technologies, and popular culture in the lives of children and adolescents cannot be overstated. For digital natives, technology use is a naturalized and unthinking process that has always been part of their life experience. In non-formal, everyday environments young people constantly engage with a multiplicity of information and multimedia technologies to “process, interact and use information ...[to] communicate in fundamentally different ways than any previous generation” (Jukes & Dosaj, 2006, ¶2). Yet the daily work of teachers and students in classrooms seldom includes youths’ social practices and

popular culture interests. This is not surprising, given that the onus for rendering them as feasible tools for instruction rests solely on teachers. This includes everything from aligning each tool with subject matter content to gauging whether or not the tool will stimulate student interest without becoming a distraction; from identifying the appropriate tool(s) for each learner in a roomful of students with diverse linguistic and ability levels, to maintaining order in the classroom. All this must happen, of course, at the same time that teachers are responsible for boosting test scores, covering massive amounts of information while adhering to a prescriptive curriculum, and contending with irate parents. Moreover, teachers usually begin teaching with what they already know or have learned through experience - with their own knowledge, which may or may not include technology - rather than the knowledge that students bring with them to school (Zull, 2002). As a result, children and adolescents sometimes experience a clash of cultures when they arrive at school, a milieu where popular culture is frequently dismissed as “mindless drivel” (Hagood, 2001, p. 254), and technology is often an add-on that is routinely misused, underused, or completely absent from classrooms (Cuban, 2001; Lankshear & Knobel, 2006). Time and again technology-related discussions center exclusively upon ways to keep students from using it during the school day, rather than on the potential of technology to motivate learners and enhance instruction. Hence, the social practices students engage with in out-of-school spaces are frequently overlooked or discounted within educational settings because they are not considered relevant to the curriculum (Ajayi, 2009; Knobel & Lankshear, 2009). The resulting fracture between school life and children’s everyday experiences can make classrooms seem like “places where one cannot engage in anything real or important” (Lewison, Leland & Harste, 2000, p. 14).

Fortunately, there is growing recognition of the need to take seriously the literate practices of the “Millennial generation”, those students who were born in or after the year 1982 (Oblinger, 2004; van Horn, 2006), and how those practices potentially connect with learners’ academic lives (Alvermann, 2008; Dewey, 1902). Web-based learning, electronic communications, and a plurality of other digitally-mediated aspects of life that were once largely outside the realm of education are increasingly being incorporated into it (Black, 2009; Knobel & Lankshear, 2009). To date, however, there is limited professional literature focused on how the technologized social practices of digital natives can be used to scaffold their academic learning (Black, 2009; Knoester, 2009; Marsh, 2006).

Review of Literature and Conceptual Framework

Sociocultural theory (Vygotsky, 1978; Wertsch, 1998) underpinned this study and provided a lens for analyzing the data. Critical multimedia studies (Alvermann, Moon, & Hagood, 1999; Lemke, 2006) and critical pedagogy (Freire, 1993) shaped the research questions and the instructional approaches utilized by the participants in this investigation. Critical theory asserts that power relations are socially and historically constructed, and that in every social context there are certain groups who are privileged over others. Central to the notion of critical pedagogy is the development of critical consciousness: an awareness of how socially and culturally constructed discourses and practices empower or disenfranchise individuals or groups (Freire; Wink, 2004). Critical literacy is a form of emancipatory education intended to help learners develop a sense of agency and empowerment through the recognition that messages produce, reproduce, and/or intensify social inequities (Marsh, 2006; Young, 2001). McDaniel (2004) and Comber (2001) have pointed out that critical literacy theory is an overall philosophy

and attitude, rather than a set of methods and techniques. Shannon (1995) describes critical literacy this way:

Critical perspectives push the definition of literacy beyond traditional decoding or encoding of words in order to reproduce the meaning of text or society until it becomes a means for understanding one's own history and culture, to recognize connections between one's life and the social structure, to believe that change in one's life, and the lives of others and society are possible as well as desirable, and to act on this new knowledge in order to foster equal and just participation in all the decisions that affect and control our lives (p. 83).

In other words, development of a critical perspective entails learning to read the world by enacting the "knowledge, skills, and values needed to negotiate and transform the world" (Giroux, 1993, p. 376). Becoming critically literate involves the analytical and skills-based competencies needed for active participation in a democratic, participatory culture (Hobbs, 2007).

Sociocultural conceptions of literacy espouse that meaningful learning is tightly interwoven with the everyday experiences of learners' as they engage in social, civic, and economic life (Freire, 1993; Tisdell, 2008). These practices and processes are contextual and intertextual in nature. That is, they form the basis for understanding and making meaning not only from words on a page, but also through learners' perceptions of and interactions with the world. From a sociocultural standpoint, literate processes involve the traditionally recognized skills associated with reading, writing, and speaking, but they also include broader forms of knowledge construction that emerge during social interactions (Gee, 1996, 2003). In other words, social practices, which are mediated by actions, objects, tools, ideas, values, and spaces, are in

fact literate practices (Gee, 2003). Researchers in the fields of new literacies, multiliteracies, and critical literacy (Alvermann, 2008; Knobel & Lankshear, 2008) seek to understand the interrelations between literacy, technology-mediated social practices, and inquiry-oriented learning.

Miller (2007) examined the use of multimodal literate practices for English education, drawing on data from a digital-video composing project with secondary English classroom teachers. According to Miller, awareness and engagement with multiple media are essential components for preparing learners to locate, filter, and produce media. Similarly, in her work with online fan-fiction spaces, Black (2009) found that 21st-century skills, including technological proficiency and semiotic forms of communication (van Leeuwen, 2005) were crucial to understanding how technology can inform teaching. Studies such as these point, at the most basic level, to the recognition that the 21st century world is media saturated, technologically dependent, and globally connected (National Council for the Social Studies, 2009). Life in the multimedia age demands the development of the skills needed to access, analyze, manipulate, and distribute messages and information.

The current research draws from the framework of Technological Pedagogical Content Knowledge (TPACK), which refers to understanding and negotiating the relationships between technology, pedagogy, and subject matter (Mishra & Koehler, 2006). TPACK is concerned with “representation and formulation of concepts, pedagogical techniques, knowledge of what makes concepts difficult or easy to learn ... [and] how subject matter is transformed by the application of technology” (Mishra & Koehler, p. 134). For this study, TPACK was the unifying strand for weaving together the conceptual frameworks of technology integration, critical literacy, and engaged, meaningful learning. TPACK has been used as a framework to examine how social

studies teachers' pedagogical aims influenced their choices of technology. Hammond and Manfra looked at connections between classroom instruction and research on effective uses of educational technology. Like researchers before them (Shulman, 1987; Thornton, 2001), Hammond and Manfra found that pedagogy, as opposed to technology or content, most heavily influenced teachers' classroom practices. While not new, the relevance of critical analysis, media literacy, and TPACK for content learning in general and literacy education in particular is more salient than ever (O'Brien & Scharber, 2008).

The research presented here is an initial exploration of the complex manner in which critical theory, technology integration, and content area instruction complemented, constrained, and sometimes conflicted with each other (Harris, Mishra & Koehler, 2009) in K-12 settings. This qualitative study adds to the small field of socioculturally-situated research examining the appropriation or rejection of technology-supported critical analytical frameworks by pre-credentialed and in-service teachers. The following research questions guided this study:

1. What epistemological and practical opportunities and challenges did the participants encounter in their attempts to integrate critical literacy and technology-enhanced instruction into classroom teaching?
2. What local, institutional, and larger sociopolitical influences shaped teachers' decisions to take up, modify, or reject technology-supported critical frameworks?
3. How might teacher educators assist pre-service and practicing teachers in carving out pedagogical space for the meaningful integration of technology and critical practice within the constraints of a standards-driven curriculum?

Several dimensions of participants' efforts to incorporate technology and critical practice into their instruction are portrayed in the four selected vignettes that follow. The first vignette

describes an activity by a participant who used instructional technology with her middle school students but failed to reap the results she was hoping for. The second and third vignettes describe circumstances where the participants made conscious decisions to avoid critical approaches to their instruction. In the fourth vignette, technology and critical literacy were logically and coherently integrated into content teaching, resulting in benefits for the teacher as well as for the students. Instructional implications and limitations are discussed next, followed by recommendations for teachers and teacher educators.

Method

Research Design

This case study (Yin, 2004) is a phenomenological exploration of pre-service and practicing teachers' attitudes, beliefs, and experiences as they endeavored to integrate technology and critical literacy into their instruction. Phenomenology emphasizes discourse and interaction in context in order to understand the social practices of a particular group from their point of view (Moustakas, 1994; van Manen, 1999). Because phenomenology is predicated upon the assumption that research and practice are intertwined rather than separate activities, sociocultural scientists and critical theorists consider it a valuable tool for conducting human science inquiry (Cresswell, 1998; Willis, 2007).

Setting and Participants

The graduate-level instructional technology course framing this study was a requirement for pre-service and practicing K-12 teachers seeking either a master's degree with licensure or certification in their teaching field. It was designed to familiarize teachers with an array of digital tools and new media practices for supporting and extending their classroom instruction. The class focused on cultivating generative, discursive spaces for the participants to examine their

own praxis, and the larger apparatus of education, through a digitally-mediated critical lens. The researcher was the instructor for the course. Participants were 27 preservice and in-service elementary and secondary teachers enrolled at a large, urban university in the southwestern United States. The class was comprised of 19 females (70%) and eight (30%) males. Fourteen participants were full-time teachers, and thirteen were student teachers. The mean age of the participants was 24.3 years, with an average of 3.5 years of teaching experience. Participation in the study was voluntary. All names used here are research pseudonyms.

Data collection and analysis

Data sources included field notes, transcribed recordings of participants' conversations, and artifacts created by the participants as part of their coursework. Data were also collected from an archive of online, asynchronous discussions using Web CT course management software. In addition, the participants and some of their students kept reflective journals, which they shared in online and face-to-face discussions. The researcher kept a detailed journal to record and contextualize the events of each class session and to reflect on questions, concerns, and issues that emerged during discussions. Researcher notes included talk and/or action by the researcher and participants, methodological notes, theoretical notes, and personal reflections (Spradley, 1980).

Discourses and artifacts from these multiple sources were examined, re-examined, and compared for patterns and themes (Erickson, 1986; Spradley, 1980) using three analytic tools: content analysis (Silverman, 2001), positioning theory (Harre & Moghaddam, 2003), and critical discourse analysis (Gee, 1996; Fairclough, 1995). Data analysis included consideration of what was said, what was not said, how it was said, who said it, and in what context. The researcher scrutinized the data carefully several times before inductively coding initial themes related to the

research questions. Subsequent readings of the data served to refine the coding categories to more precisely reflect the perspectives of the participants (Stake, 2000). To establish interrater reliability, two other qualified researchers who were familiar with the study also read the data; they and the researcher met on several occasions to negotiate 100% coding agreement (Merriam, 1998). To further enhance reliability the data were triangulated across sources using the constant comparative method (Cresswell & Miller, 2001). Member checks were conducted with several participants to clarify and correct, if necessary, interpretations of data patterns and themes (Yin, 2004). Member checking, sometimes referred to as respondent validation (Silverman, 2001) is a mechanism for enhancing the reliability of qualitative research (Erickson, 1986). Excerpts from journal entries, transcribed audio recordings, classroom conversations, and online discussions are included in what follows to trace the shifting perspectives of the participants and to support interpretations of the data.

Procedure

The aim of this research was to describe, through contextualized, thick-rich descriptions (Merriam, 1998), the participants' attitudes, beliefs, and experiences as they integrated technology and critical literacy into classroom instruction. As part of their coursework, the participants designed three original, comprehensive lesson plans. They had autonomy regarding the length and sophistication of each lesson, and in deciding whether the lessons connected to or built upon one another. Other coursework included digital video production, creation of stop-motion animation sequences, participation in online social networking spaces (e.g., Facebook, MySpace), and critical analysis of film, television, and educational videos on You Tube and Teacher Tube.

The participants had little to no experience with the processes involved in deciding whether and how to utilize digital media and critical practice in the classroom. Thus, the course began with the participants reading a selection of contemporary articles (Bean & Moni, 2003; Cadiero-Kaplan, 2002; Hagood, 2002; Lesley, 2004/2005; Lewison, Flint, & Van Sluys, 2002; Stevens, 2001) focused on merging new media and critical perspectives into curricular practice. Initially the teachers deconstructed texts from popular media such as *Vanity Fair* and *People* magazines, music by artists such as U2, Kanye West, and Ludacris, and television programs such as *The Simpsons*, *American Idol* and *The Daily Show with Jon Stewart*. One important objective of the class was to ensure that the participants acquired the necessary skills to analyze texts and discourses, while simultaneously attending to how meaning is constructed through participation in reading, listening to, or viewing them (C. Luke, 2000; Myers & Beach, 2004).

Results and Analysis

Vignette One: A Missed Opportunity

Effectively integrating technology and critical approaches into standards-driven curricula proved to be a delicate balancing act, one that posed substantial challenges for the participants. A case in point was the first lesson created by Laura, a middle school language arts teacher who was beginning her first semester of student teaching. Laura's lesson centered on a Powerpoint presentation she created chronicling the life and career of the American pop icon/entertainer Jessica Simpson. The slide show included narration and photographs of Simpson, juxtaposed with outtakes of songs recorded by her and links to her online fan site. In the lesson Laura described how Ms. Simpson had struggled, persevered, and ultimately transcended obstacles to her success and happiness. The stated objective of the lesson was to launch a writing activity wherein students would identify three personal goals for themselves. After sharing the slide show

with her students, Laura asked each of them to jot down one short-term, one five-year, and one lifetime goal. Afterward, in small groups, students were asked share their goals and to brainstorm about potential obstacles to achieving the goals and to consider possible ways of overcoming those obstacles. Responses from her students varied. Laura indicated that in some cases she was disappointed with the lack of depth and specificity in the students' writing. She noted:

“I had fun creating this lesson, but ... it didn't go very well. One negative comment [by a student about Simpson] and they started rolling their eyes ... it was awkward and kinda weird...I guess they thought it was boring”.

Laura noticed that some students used the entire half hour to simply list a few, non-specific goals, such as: “I just wanna get through today” and “ My goal is lipgloss, lipgloss, lipgloss”. In discussions with her peer group Laura was asked why she had not included a critical component in her lesson. She explained:

You know, I wanted to use the Internet and popular culture ... but all this stuff about war and starvation and racism, God, it's just so depressing. I wanted to it [technology] to make my students happy so they want to learn. If you use it to point out all that bad stuff it's just too depressing. Jess's life is a success story ... and that's really the key... if we just focus on the hurt, the bias, and discrimination in society, that can be a real turn-off ... besides, I wanted it [the lesson] to be simple and not so confusing.

Laura's remarks suggested an eagerness to engage her students in the writing process using a role model that, from her perspective, would inspire them to set goals. This was Laura's first lesson plan for the class, however, and her remarks indicated a limited understanding of critical pedagogy. Laura declined to adopt or have her students take up a critical questioning stance because at this point her understanding of critical pedagogy focused exclusively on the language

of critique, which, while an important consideration, was incomplete. According to Macedo (2006), “the discourse of democracy also needs a language of possibility, one that combines a strategy of opposition with a strategy for constructing a new social order” (p. 31). In addition to raising awareness of how people are positioned by structures of power, critical theory’s concern with the social construction of experience makes it the “discourse of possibility” (Kincheloe & McLaren, 1994, p. 139) by giving voice to those who have traditionally been silenced, marginalized, or disempowered. The aim of critical pedagogy is to promote personal agency and democratic possibility within social contexts (Bean & Harper, 2008; Cochran-Smith, 2004; Freire, 1993). As Furness (2007) explained “the problem is that many educators feel as if the only way to empower students is to overwhelm them with information and statistics about ... insurmountable problems ... without adequately discussing the ways in which people either challenge ... power or create alternatives to it” (p. 188).

Laura’s Powerpoint lesson failed to resonate with her students for several reasons. First, the lesson overlooked the matter of their teacher’s positioning of Ms. Simpson, a member of the dominant culture, as the focal point of a goal-setting activity. This was a puzzling finding considering that a central tenet of the course was to design instruction specifically attending to issues of learner autonomy and the balance of power in the classroom. According to Laura, most of her middle school students were Latino/a or African American. Unaware of her own privileged status compared to her students, it hadn’t occurred to Laura at the time to adjust the lesson to include suggestions for potential role models from her students.

Furthermore, to stimulate literate activity on the part of students a writing assignment must include some means for students to construct their own knowledge (Shor, 1986). This stands in sharp contrast to Laura’s lesson, where students were given little room for the

development of personal agency or to access or construct their own knowledge. Laura's activity essentially disempowered students because it failed to consider any potential contributions they might have made to it. Instead, the lesson hewed closely to the contours of traditional banking conceptualizations of education (Freire, 1993) characterized by the one-way transmission of ideas and information from teacher to passive audience.

Vignette Two: In-School versus Out-of-School Texts

The participants drew upon popular culture to learn about their students' lives, cultures, and everyday out-of-school experiences. Karina, a secondary social studies teacher explained, "they [students] couldn't believe they got to go home and watch TV for homework, they thought that was very cool ... and they really did pick out some of the stereotypes, especially in the commercials on Comedy Central ... like the beer ads". Roger, a secondary English teacher added, "some of them watched cartoons ... like *Southpark* and *The Simpsons*. They noticed that shows they watched often referred to other television programs like *The Colbert Report* ... and that the programs had all sorts of references to things like texting and Facebook". Through popular culture, students' everyday literacies and experiences were brought into the classroom, critically examined, and used to spur meaningful, culturally responsive learning. Yet not all of the participants were convinced that a critical questioning stance was applicable to all curricular topics and materials. Entries in their journals and online discussions indicated that 23 of the 27 participants (85%) considered the prospect of interrogating canonical texts such as basal readers, textbooks, reading software, and classical children's literature to be problematic. They enthusiastically engaged with their students in analyzing out-of-school discourses such as comic strips, television commercials and music videos. However, they had misgivings about subjecting standardized curricular materials to the same critical scrutiny (Fecho, 2000). This was not

surprising given that school-sanctioned texts are at the heart of traditional classroom instruction, with teachers generally guiding students in decoding and comprehending texts as opposed to critiquing them (Stevens, 2002). As several teachers pointed out on the online Web-CT discussion board: “I mean, how are we supposed to critique these [books]? It’s not like we have any choice over the books we use for teaching or the books in the library. We’re a Title I school, so we have to use the books. It doesn’t make sense to do this [critiquing activity], just to get [ourselves] all upset about it”. Another teacher added, “it’s unnerving ... it’s like digging up trouble ... maybe it’s better to leave it alone. What happens if the parents complain? I’m new at my school and I don’t want to start off on the wrong foot with the kids and parents”. A third participant expressed concern that “this seems dangerous ... besides, it might end up just being a big distraction. An experienced teacher responded with “I see why we’re supposed to do this, but ... in some ways it seems like a fool’s errand ... the incentive just isn’t there to look at the books in our [classrooms] the same way we did TV”.

The participants’ discourse depicted mixed feelings about how or whether to enact the critical practices they were learning about. In particular, they were uncomfortable with taking up a critical stance if doing so seemed likely to conflict with the established curricula, especially scripted reading programs. As one student teacher pointed out, “there’s no support for that. It’s not considered evidence-based teaching. We’d be on our own with this ... and I’m not ready to be on my own”.

Understandably, the prospect of interrogating canonical texts held little appeal for the participants. As Marie, a secondary language arts teacher explained, “... that is all well and fine, but in the end, we are evaluated by the principal ... and judged on our kids’ test scores, not on how emancipating our curriculum is”. Throughout the semester the participants returned to the

thorny issue of enacting instructional practices that potentially ran counter to the prescribed curriculum or challenged the dominant political and ideological constructs in place at their schools. At times, it was clear that asymmetrical distributions of power at their schools influenced their willingness to conceptualize their teaching through the lens of critical practice (Bullough & Draper, 2004; Foucault, 1977). Most of the teachers adopted a submissive posture towards powerful sociopolitical influences even before they had become full-time teachers. In particular, the student teachers reported feeling reluctant to challenge the status quo because they were on placement, apprenticing under more experienced teachers. One participant remarked, “we expect the kids to have some attitude because the [reading] programs are kind of dry... but for us [teachers] to do this ... to dissect them or hold a magnifying glass up to them might be seen as being out of bounds, you know, a little too in-your-face”.

Vignette Three: Teacher Responses to Games for Learning

Seeking to learn more about their students’ out-of-school lives in order to design relevant, motivating instruction for them (Alvermann, 2002) the participants asked their students to list the media they generally spent the most time with. Television, the Internet, cell phone use (particularly texting), and computer gaming consistently topped the students’ lists. There was evidence that all 27 participants had incorporated critical analysis of the first three of these activities into their instruction. They displayed considerably less enthusiasm, however, toward the idea of scrutinizing video games. There were several instances where the participants expressed concern about feeling unqualified to critique the discourses, narratives, or representations within the games. As Susan, a fourth-grade reading teacher, explained,

I don’t know how to use one of those things [game controllers]. I don’t even know how to hold it. My son has one, but I’d feel silly asking him how to play

a game. I limit his computer time to an hour a day, but to be honest I don't even know what the games are about, or why he's so into them. It seems like a lot of noise and repetition to me ... but he really likes the [car] racing games. It seems like he'd get bored with that, but so far he hasn't lost interest. That's what he always asks for at Christmas – another one [video game].

Marie, also a reading teacher, added “Yeah, I mean, I'm supposed to be the teacher. ... what if the whole thing spins out of control? ... how will we even know if they did the assignment right if we don't know anything about the games they're playing? We can't evaluate that because we don't have enough information”. A first-semester student teacher offered, “... there's no way this would fly at our school ... (laughs) ... we might as well ask for cotton candy while we're at it ... they [school administration] wouldn't take us seriously”. Seth, an experienced teacher who taught ninth grade algebra, felt somewhat comfortable playing video games, but he remained skeptical about asking his students to critically analyze them. He explained

I grew up with Game Boy and some video games. But not like it is now ... kids spend hours and hours playing these games with lots of different players fighting these huge battles that go on and on for days and weeks ... and that sort of thing. I'm not familiar with those games, and I don't have time to learn ... I do know that they [students] would definitely watch to see if I know what I'm talking about ... and of course, I wouldn't [know], and they'd know that.

The participants readily acknowledged the centrality of games in their students' lives (Unger & Kingsley, 2006, 2007), but it was clear from their responses that several of them were uncomfortable with video games because they felt they lacked the credentials to critically examine the content of and procedures intrinsic to playing the

games. Although they had read articles and discussed how digital games might be used to support content area instruction (Squire & Jenkins, 2003; Oblinger, 2004), many of the participants regarded games for teaching as potentially too difficult to manage (Alvarado, 2008). In one form or another, 25 of the 27 participants (93%) indicated that they believed they lacked the knowledge or skills to critique, or to have students critique video games. As Renee, a student teacher working in a fourth grade classroom stated, “There’s already too much to cover, and we’re testing [school-wide standardized tests] in a couple of weeks. I’m not writing off games completely here, but at this point there’s no time to add them to the picture. I’m not sure it’s worth all that effort. Technology should make teaching easier, not more complicated”.

It is important to note that expertise with digital games is not a precondition for viewing them from a critical standpoint. Proficiency with game play may be useful, but a lack of experience with electronic games does not preclude the critical examination of themes embedded in a game’s narrative. While it is true that many commercially produced games contain racist, misogynist, violent, vulgar, or other objectionable content, the last decade has seen a proliferation of digital games and simulations specifically designed for teaching, for therapeutic purposes, and for increasing social awareness (Hamlen, 2009; Hutchison, 2007; Michael & Chen, 2006). Recent research on the use of epistemic games for education has shown that through game play, learners engage in immersive, real-world related processes, such as working and thinking like innovative professionals in the workplace (Nodoushan, 2009). A serious game is defined as “a game in which education (in its various forms) is the primary goal, rather than entertainment (Michael & Chen, p. 17) and “use[s] the artistic medium of games to deliver a message, teach a lesson, or provide an experience” (Michael & Chen, p. 23). Of course, this does

not imply that learning and having fun are discrete, mutually exclusive activities. Rather, educationalists who are part of the Serious Games initiative seek to identify places where learning and enjoyment overlap, where each can use the tools of the other to achieve their goals (Abt, 1987; Beck & Wade, 2004; Gee, 2003).

The games-for-good movement is gaining traction, although a huge gap remains between the culture and ethos of contemporary mainstream education and young people's digitally-mediated experiences (Kingsley & Boone, 2008-2009; Rushkoff, 2006). More research is needed into the relationships between technology, popular culture, and academic learning (Alexander, 2008; Jolley, 2008). As Carol, a fifth grade teacher explained, "we have to reserve the [computer] lab months in advance ... and then, sometimes it doesn't matter because we get kicked out [of the lab] anyway for testing or something or other. Besides you know you can't tell the lab guy and the instructional coach you need the lab so the students can play games".

Vignette Four: Technology and Critical Practice as Empowerment

In some cases the participants reported successful implementation of technology-supported instruction within a critical pedagogical framework. A case in point was Wayne, a participant who taught economics and business computing classes and served as faculty advisor for his high school's yearbook. Wayne's students designed projects that included a spreadsheet-driven budget and an accompanying report incorporating text, images, animation, sound and/or other media. Two of his eleventh grade students based their project on the MTV television show *Pimp My Ride* to plan how they wanted their car to be "pimped" (customized). They created a detailed budget for the customization features they wanted for a 1970 Chevrolet Nova, e.g., glitzy chrome rims, a television/stereo system, mp3 player, Internet access, video game console with plasma screen, a racing motor with a high-performance carburetor, sophisticated radar

detection equipment, global positioning system, etc. The boys went online to research how people are selected to be on the show to have their car customized. The fact that they were not old enough at the time to be on the show (the age range being a very narrow 18-24 years) did not dampen their enthusiasm for the project. The boys journaled extensively about their dream car, cutting and pasting images from the Web and from car magazines to illustrate the features they were writing about. They even downloaded a sound clip from the Web of the noise they wanted the car's horn to make.

The boys made several astute observations in the process of analyzing themes represented in the program. They noted that cars are an important aspect of identity formation (Norton, 2000) as well as a means for expressing individuality. They pointed out that people drive cars for a variety of reasons: some want fuel economy or low carbon emissions, while others look for affordability or room for a family. Some crave speed, while still others insist on luxury or high safety ratings. Cars can be a status symbol, a way to attract women, or a mechanism for appearing dangerous. They also noticed that in the excitement over the countless accoutrements for automobiles featured on the program, it was easy to lose sight of the fundamental premise that cars are intended to transport people from one place to another. Furthermore, the boys pointed out that some of the customization features showcased on the program stretched beyond extravagant to the point of being absurd or even hazardous (e.g., a fountain in the back seat, a DVD player on the sun visor). They continued to dig deeper to uncover why the representations in the program were created, by whom, and what their intended effect was on audiences.

Wayne described watching *Pimp My Ride* for the first time after his students created their project, and how he had believed up to that point that “rappers and gang-bangers were the same thing. I mean, I thought if you were one, you were the other too ... but my students informed me

that Xibit [the host of the show] is not a thug, he is a member of hip-hop culture ... so I learned something. I enjoyed the program because I've always liked cars ... and I think they [students] got a kick out of the idea of an old coot like me watching a show called *Pimp My Ride*. My wife thought that was really funny”.

In this lesson Wayne's students assumed ownership of the meaning-making process because they had voice and choice in deciding which texts to create and analyze. Wayne recognized that in order for this to happen, a trade-off of sorts was necessary: in pursuit of the larger goal of allowing students to venture into and construct their own spaces for learning, he relinquished control over certain aspects of the lesson. While he was delighted by his students' projects, Wayne acknowledged that time and effort would be needed for him to retool his curriculum to integrate technology-mediated critical literacy activities. He added, "... boy, sometimes I wish I hadn't learned all this stuff ... because now I have to redo it [the curriculum]. But the kids love it ...and it's fun for me too”.

Discussion

Technology and Media Literacy in Action

On a practical level, the participants' reluctance to take a critical stance toward canonical texts, as well as their skepticism of bringing popular culture into the classroom made sense. Overall, the participants were both optimistic and pragmatic about the process of acquiring new digital literacies and translating them into effective instruction. The participants expressed anxiety about encountering unexpected messages in literature and curricula that they might not intend to convey to their students, and they felt powerless to do anything about those messages if they were uncovered. They didn't want to cause trouble, as one teacher explained.

By definition, both technology integration and critical literacy involve movement away from familiar instructional approaches toward the less certain sphere of educational change (Lewison, Flint, & van Sluys, 2002). The participants were aware of this, and they were candid about their fears regarding technology use and critical pedagogical practice, activities they repeatedly described as potentially problematic and dangerous (Hagood, 2002). Further analysis of the data revealed an interesting pattern in the participants' discourse: potential peril or discomfort on the part of students with regard to either technology or critical pedagogy was apparently not an issue. All the fears and possible dangers expressed by the teachers were strictly teacher-oriented; that is, dangerous only for them.

In follow-up emails and conversations several participants were asked for their thoughts about the possibility of problems or negative consequences for their students learning to use technology and critical literacy. Typical responses included comments such as "the kids will be fine [with] whatever we do. Games, books, whatever. It's the parents and the principal that I worry about" or "They love this stuff. They have no fear" and "of course we care about the kids. But the problem is mainly for us because they know how to operate in that culture and how to behave in that context, and we don't". One teacher summed it up this way: "In the end, we're the ones who need help with this. We have to guide them ... but the kids are alright".

Participants in this study were contending with institutional pressure to behave in certain ways: to maintain control of their classrooms, to implement a curriculum that reflected the interests of the dominant culture, to cultivate relationships with parents and school administrators, and to raise student scores on standardized tests. They reported feeling overwhelmed with trying to juggle this heterogeneous mixture of concerns, even without bringing technology and critical inquiry into the milieu. With little time to practice with

technology and criticality, the magnitude and immediacy of the participants' concerns related to curricula, parents, and administrators appears to have taken precedence all other considerations. As one participant explained, "It's not logical to try to do this right now. We've got to stick to the scope and sequence or we won't cover it all [subject matter]. And then they won't be ready for testing".

Othering of Popular Culture Texts

Researchers have consistently found that game play and other social practices that take place outside the realm of school are frequently "othered" (A. Luke, 2003; Scheurich, 1997) by teachers and "are therefore excluded as unthinkable" (Bourdieu, 1990, p. 54). At the same time, significant efforts are being made to tap learners' out-of-school funds of knowledge by connecting subject matter and classroom instruction to digital culture such as video sharing, text messaging, game play, and social networking (Black, 2009; Miller, 2007). Educators are continually exploring instructional models, subject matter, assessment practices, and pedagogical approaches that facilitate knowledge construction through technology-mediated communications (Alvermann, 2008; Lankshear & Knobel, 2006). But to date, these efforts have been piece-meal and underfunded. The historical inattention to critical literacy and technology within programs of teacher education has resulted in a disjuncture between teachers who have grown up and worked in a print-centric world, and learners who have never known a world without technology.

Possibilities for change

Clearly, teacher preparation programs must be reconceptualized and reformulated to reflect the increasing relevance of multimodal approaches to student learning, and to incorporate the corollary critical analytical skills needed to pose probing questions about the torrents of information students encounter on a daily basis. This represents a formidable challenge for

teacher educators because it will require large-scale, systemic change. If media literacy and critical literacy are to become integral aspects of teacher preparation, movement in two directions is needed: a horizontal expansion and a vertical deepening (Hobbs, 2007; National Council for the Social Studies, 2009, ¶ 10). The horizontal movement involves broadening the definition of what is considered school-appropriate text for analysis, to include multiple forms of information, including popular culture texts. Vertical movement is also needed to help pre-service and inservice teachers deepen their understanding of the inextricable links between information, knowledge, and power (¶ 10). In their Position Statement on Media Literacy (2009) the National Council for the Social Studies notes that although the US is the world's leading producer of media, it is far behind in teaching the skills needed for "accessing, analyzing, evaluating, creating, and distributing messages within a digital, global, and democratic society" (¶ 2).

Limitations and Future Research

This study has several limitations, including the small number of participants and the disparate levels of teaching experience among them. Some limitations relate to issues that, while important, were necessarily beyond the boundaries of this article and for that reason they are recommended as avenues for future research. First, detailed examination of the societal, institutional, and local nuances of every interaction and discursive exchange recorded throughout the course of this study would have been impossible. Data analyses were finite due to space limitations, leaving some aspects of the data to be analyzed at a later time. Moreover, because this study was an interpretive examination of situated texts and interactions (Fairclough, 1995) that were constructed and practiced by teachers in particular contexts (Gee, 1996), the results do not necessarily generalize to all similar settings. In the future, it might be worthwhile to solicit

students' responses to technology integration and critical literacy activities, and then juxtapose them with the perspectives of their teachers in the same classroom.

Another avenue for future research would be to explore ways that technology-enhanced principles of critical literacy directly align with recognized evidence-driven approaches to classroom instruction and assessment. Electronic texts offer new supports as well as new challenges for teachers, and officially sanctioned curricula aren't necessarily antithetical to critical practice, although the two are commonly viewed as disparate (Apple, 1998). If critical perspectives and technology are to be meaningfully integrated into instruction, more research is needed into ways for educators to effectively blend them into everyday teaching, as opposed to keeping them walled off and set apart from officially sanctioned forms of knowledge. A final area of potential research would be to turn a critical reflexive lens inward in order to examine whether, and to what extent, researchers' participation in studies of this sort might construct, change, reproduce, or disrupt the very processes being investigated (Rogers et al., 2005).

Implications and Conclusions

According to the 21st-century Workforce Commission (2000), "the current and future health of America's 21st century economy depends directly on how broadly and deeply Americans reach a new level of literacy – 21st-Century Literacy" (p. 4). In a world where information is the currency of power, proficiency with technology, as well as the competencies needed to seek out and critically evaluate information are indispensable tools (Kingsley & Kingsley, 2009; Palfrey & Gasser, 2008). Yet there is scant research focused specifically on the nexus of learners' technology-enhanced, multimodal literacy practices and K-12 instruction (Hagood, 2002; Knobel & Lankshear, 2009). In fact, Evans, Avery, and Pederson (1999) have

suggested that “the closer to students’ lives, the more meaningful [texts are], the more likely the topic is to be taboo” (p. 222).

Closing the Gap

Navigating the milieu of technology, popular culture, and critical practice within the constraints of today’s culture of academic accountability can be a confusing, chaotic process yielding nebulous benefits. There are insights to be gleaned from the current study that may be helpful for educators endeavoring to integrate media-rich activities and critical frameworks into their existing curricula. The following recommendations are described from the perspective of a teacher educator; however content area teachers across disciplines and grade levels may also find them instructive.

First, it is important to understand that research in the fields of educational technology and critical pedagogy are still in their infancy. As such, both areas are essentially a patchwork of shifting actions that must be continually constructed, negotiated, and renegotiated across time, space, and context (Groenke, 2008). There is no specific step-by-step, one-size-fits-all formula for approaching either of them. McLaughlin and DeVood (2004) have pointed out that teachers do not just become critical. Rather, the acquisition of technology skills and the taking up of a critical stance unfold gradually in unpredictable ways through learning, unlearning, reflection, evaluation, and changing over time. Teachers can become overwhelmed by the complexities of trying to learn media literacy while at the same time trying to teach it in their classrooms.

Second, teachers need guidance in formulating critical approaches that will fit with the culture and context of their schools, while at the same time acknowledging content-related learning that takes place outside of school (Lewison, Flint, & van Sluys, 2002). Some questions teachers might consider asking about media representations include, but are not limited to: Who

is responsible for creating this message or media production? What ideologies are behind the production? What manifest messages are included in the presentation? What latent messages are embedded in this presentation? Who is the message intended for, and who stands to benefit from it? Who stands to be silenced, or even hurt by it? Who is missing from this media representation? How might an understanding of life be limited by this representation? Of course, asking these sorts of questions cannot ensure that teachers or students will automatically develop a critical understanding of their own life experiences. Nonetheless, such questions can provide space in the curriculum for critical discussions to emerge.

There are reputable, comprehensive Web sites, such as the Media Awareness Network, and the Media Education Foundation, as well as documentary films (see Trier, 2006) that can provide a quick but thorough overview of critical literacy using multiple media in educational contexts. The Partnership for 21st Century skills provides tools and research on how educators can integrate 21st century skills into the curriculum. In addition to providing interesting information on media awareness and 21st-century skills, the Web sites include study guides, online resources for educators and parents, and research bibliographies.

Rogers and colleagues (2005) have suggested that the extant research focused on multimodal, participatory texts within educational settings is underdeveloped. Nonetheless, digitally-mediated information and electronically distributed data have transformed, and will continue to transform, the design and delivery of instruction, how academic outcomes are measured, and the way learning itself is conceived, represented, and studied (Kingsley, 2007; Kingsley & Boone, 2008-2009). This study adds to the research literature emphasizing the importance of preparing teachers and teacher educators to empower learners by giving them the tools and agency needed for engaged, critical, self-actualized learning. In programs of teacher

education, courses in instructional technology and critical pedagogy tend to be stand-alone, prescribed classes that do not necessarily attend to the complex realities of teaching in PK-12 schools. Such programs frequently turn out teachers who are unprepared for the difficult work of transforming 21st century classrooms into participatory, democratic spaces. The promise of innovative technology and the transformative power of fostering an informed, critical disposition cannot be realized until both are embraced as crucial elements of teacher education coursework and student teaching experiences. Critically-informed multimodal learning practices and the literacies that flow from them aren't obstacles to classroom teaching; they are a vital part of it. Hence, they need to be fully integrated into all aspects of teacher preparation (Miller, 2007). For this to happen, teacher educators will have to make the quantum leap from teaching old things in new ways to teaching new things in new ways.

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