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Chapter 13

New Technologies and Doctoral Study in English Education

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“The well-prepared doctoral student of 1964, wrote Dwight Burton in a forward-looking *English Education* article in 1982, is still the well-prepared candidate of today” (p.147). Over two decades later, it would no doubt be difficult to make a similar argument. The well-prepared English education doctoral candidate of today must master a body of knowledge and a range of skills that did not exist when Burton speculated on the future of the profession in 1982. In that year, the year that *Time Magazine* named the personal computer Machine of the Year, the recently marketed IBM PC came equipped with a 16-kilobyte memory, a floppy disk drive, a monochrome monitor, and was priced at nearly \$1,600—approximately \$4,000 today. At a fraction of the cost, computers available today have thousands of times more memory and processing power, and they continue to grow more powerful and less expensive. In 1982, the Internet existed in embryonic form, but it would be seven years before Tim Berners-Lee invented the World Wide Web, the software platform that makes it easy for anyone to gather and publish information online. Information technology was in its infancy in 1982, and Dwight

Burton would have been far-sighted indeed to include technology as a key part of his vision for English education doctoral programs.

But today, as Leu, Zawilinski, Castek, Banerjee, Housand, Liu, & O’Neil, (in press) argue, technological changes in our society are profoundly affecting the nature of literacy and literacy practices. Indeed, technology has begun to transform the very concepts of language, text, and literacy (Labbo & Reinking, 1999; Leu, Kinzer, Coiro, & Cammack, 2004). More and more people use word processing, desktop publishing, email, blogs, wikis, and social networking utilities to communicate, to read, and to write—at home and at work. According to Pew Internet and American Life Project (2007), fully 71% of American adults use the Internet regularly in any location. About 12 million youth (ages 12-17) are reported to have been content creators on personal or school blogs and webpages; to have created and shared original content such as artwork, photos, stories, or videos online; or to have remixed content found online into a new creation. Additionally, 55% of all online teens have used social networking sites to create profiles and build personal networks that connected them to other users.

These technological developments and their accompanying social practices have implications for literacy instruction, teacher education, and English education doctoral programs. Within the English language arts, technology integration is gaining momentum, evidenced by the scholarship, research, and practice at the K-12 and undergraduate levels, yet with few exceptions, doctoral programs in English education lack organized and systematic approaches toward technology integration. What we propose here, then, is a systematic—if skeletal—approach for the integration of technology into English education doctoral programs. We believe that such an approach

must address the changes that technology has created in the content of our discipline and in the way research is conducted in our field.

Content Knowledge: New Texts, New Readers, and New Writers

Any English or language arts teacher who has observed students surfing the web, writing instant messages, or creating multimedia original content or remixes of others' work recognizes that digital technology alters conventional understandings of text, reading, and writing. These changes, of course, have important implications for English language arts instruction. Consequently, we believe that English education graduate students and programs should investigate technology as part of their acquisition of content knowledge in the English language arts.

To begin, technology is changing what has long been at the heart of English language arts instruction: the study of texts. As Jerome McGann (2001) and Espen Aarseth (1997) argue, digital texts challenge ideas about what texts are and how they work, both imitating and simultaneously expanding existing print forms. Digital texts are multilinear, linking to a multitude of other texts; dynamic, changing content in real time; indeterminate, with no definite beginning or end, and multimodal, incorporating visual, auditory, and other non-verbal elements. Translating print texts into digital format also alters the ways in which texts mean and the ways in which they are accessed. As publicly accessible online archives make more and more texts available—from fiction to non-fiction, from classic to contemporary, from the academic to the mainstream—the teaching of literature and texts will also evolve. Online archives can resituate canonical works within rich multimedia contexts, expand the boundaries of reading through links to biographical, historical, and other connective texts, and widen the canon to include

marginalized writers and underrepresented genres. The digital medium has also generated new genres, such as wikis, blogs, podcasts, videocasts, social networking sites, and massively multi-user environments.

With these new texts come new roles for readers. As George Landow (1997) and Kress and Van Leeuwen (2001) have contended, digital texts present the reader with rich semiotic and semantic possibilities through multimodal content, allow the reader to follow non-linear pathways, and encourage the reader to annotate and re-center the text. Through these interactive processes, readers of digital texts become more “writerly” readers, collaborating with authors to co-create the text. In reading digital texts, readers must use a wide range of new literacy skills to formulate meaning. As Bruce (1997) notes, “new technologies continually change literacies and evolving literacies transform technologies,” as these technologies “participate in a transaction with the other technologies, texts, artifacts, physical spaces, and procedures” within any literacy setting (p.303).

In this view, readers of digital texts must know how to locate, evaluate, synthesize, cite, and use information judiciously. Increasingly, this information is taking on multimodal forms that incorporate images, video, sound, and other non-textual elements. Such texts require readers to recognize, evaluate, and create meaning within variant modes of representation (Leu et al., in press). And like print media, the new media reinforce the values and ideologies embedded in language and society. Readers must recognize and critically evaluate these values and ideologies, not only in computer-mediated texts, but also multimodal texts including film, television, music, and other popular media.

English education doctoral programs should also examine the impact of new communication technologies on composition. New digital tools are influencing the relationship between the writer and audience, author and the reader. As Grabill and Hicks (2005) and other scholars (e.g. Porter, 1998) have observed, new channels for communication and publishing such as email, listservs, chat rooms, newsletter groups, and more recently, blogs, wikis, and virtual community spaces (Leu et al., in press) have brought composing and publishing closer together than ever, rendering exchanges of ideas between author and reader faster, more frequent, and more elaborate as written communication becomes an expected part of daily interaction. To address these changes, English education graduate coursework should focus on the relationships between new technologies and composing, as well as on their influence on social understandings and the practices of writing. The new genre of the weblog, for example, might be examined as a means of enhancing and limiting writing, as truncated entries demand more strategic thinking, planning, and presenting of information (Deysher, 2002).

Additionally, new technologies allow a wide range of texts—including audio, image, and video—to be produced, revised and reproduced through the work of other authors, distributors, and discussion moderators. These new writing practices involve “distributed cognition, collaborative practice, and communities of practice” (Lankshear & Knobel, 2003, p. 165) among authors, readers, and publishers, implying that knowledge and composing processes are no longer the product of an individual, but of “a *collective* assemblage involving many minds and machines” (p.167). As composing and knowing become more collaborative, interactive, multi-modal, multi-formatted, and electronically distributed, doctoral programs should engage their students and faculty in considering the

implications of these changes for literacy development, the English language arts curriculum, and instruction at all levels.

Teacher Educators and Researchers

As doctoral students begin to take on responsibilities as teacher educators, they should also have opportunities to develop and teach technology-based lessons to their peers and to their students. At Western Michigan University, doctoral students teach undergraduate English education courses in a wireless laboratory equipped with student laptops, desktop computers, high-resolution scanners, an overhead data projector, and a smart board. At Georgia State University, doctoral students have opportunities to teach graduates in similar classrooms. In these technology-enriched environments, graduate instructors and doctoral faculty have integrated and modeled various technology applications: undergraduates and graduates have learned to use literary MOOs for role-playing activities; wikis as collaborative writing spaces; weblogs as reading journals; podcasts and videocasts as previews or work in progress series; electronic portfolios as alternative assessment devices; digital video and image capture as means for developing multigenre literary units, as well as classroom web sites/weblogs and web page/weblog design as powerful teaching and publication tools. Integrating these new technologies also challenges doctoral students to devise appropriate means of assessment, as they model technology-based learning and assignments. Technology can also encourage reflective teaching. Using weblogs or an asynchronous discussion, doctoral students might monitor their own progress in facilitating the technology-based learning of their students.

The final stage of doctoral study involves research, frequently in English language arts classrooms at the primary, secondary, or collegiate levels. Within these educational contexts, technology is both a tool and a subject of research. Sade-Beck (2004), for example, examined the methodological issues resulting from the use of technology-based qualitative research methodologies, such as online observations, interviews, and content analysis of supporting materials. Other studies explore the ethical issues in online research, ranging from privacy and human subject protection (Berry, 2004; Walther, 2002) to strategies for ethical conduct of research. These strategies include the use of digital video and online bulletin board (Haga & Kaneda, 2005), the online interview (Bampton & Cowton, 2002), or observation of online communities (Storm-King, 1996). Still other studies examine technology's impact on academic research paradigms (Berkowitz, 2004; Dahlberg, 2004). In this vein, Denzin (2004) suggests that online qualitative research relies on *hybridity*, or the "movement back and forth between real and virtual sites, research about the Internet as well as Internet research. There also is movement back and forth between online environments, traditional social research methods, and research sites" (p.2). Certainly, these studies expand our notions of research process. These new opportunities and techniques require, as Anderson and Kanuka (2003) observed, "creativity and an ability to manipulate the world in different ways" (p. 5).

To facilitate the process of data collection, classification, analysis, theory building, and data storing, doctoral students in English education programs should learn software that can assist them in this complex and multi-layered process. The qualitative analysis software NUD*IST (Non-numerical Unstructured Data Indexing, Searching, and

Theorizing, 2003), for example, can be very helpful in coding data into larger and conceptually organized units of analysis. Real time video and audio digital capture software can be very helpful too in documenting and analyzing student online reading or writing behaviors on the screen and in recording verbal think-aloud data about these behaviors. For an illustrative description of the methods used for conducting think-aloud verbal protocols, using, for example, Camtasia (software) recordings of online screen reading and transcripts of students' thinking aloud, see the paper by Leu, Reinking, Carter, Castek, Coiro, Henry, Malloy, Robbins, Rogers, & Zawilinski, (2007).

Working with this and similar software can be time-consuming, however, doctoral programs must support students in their efforts. At the same time, doctoral students should realize the limitations of such software. As Taft (1993) warns, data analysis software can facilitate data management and interpretation processes, but it cannot critically examine categories of data and reach decisions about their meaning and relevance.

To disseminate their research results, doctoral students should be invited to pursue new online publishing opportunities. Publication venues should not be limited to traditional paper-based channels, but include scholarly web sites, email listserves, peer-reviewed online journals, or even virtual conferencing (Anderson & Kanuka, 2003). These new technologies, as Anderson and Kanuka have observed, can reduce the time for publication, break physical barriers, and distribute information to a global audience. Additionally, many alternative venues encourage interaction between reviewers, authors, and the audience, allowing doctoral students to introduce themselves to the scholarly community within the USA and across the world.

Finally, as doctoral students enter the job market they should know that having their own professional online presence is an important self-marketing tool. Online course syllabi, developed web-based teaching tools, research summaries, critiques of digital data collection and analysis tools, and other resources are important additions to their vitae and demonstrate desirable skills of web publishing and up-to-date technology-enhanced teaching and research.

Moving Forward

We have quickly sketched the intertwining of English language arts and technology, specifically in the areas of content, pedagogy, and research. We have argued that digital technology has shifted the way we conceptualize text, expanded the act of reading, changed the process of composition, engendered new literacies for navigating the information medium, and created new ways of learning, doing research, and teaching. In short, nearly everything we do as English educators intersects on some level with the technology that immerses us. Technology can no longer be devised as *only* a research, teaching, or productivity tool; within the English language arts framework, it must be considered in broad sociocultural terms, inseparable from our daily literate and scholarly existence.

As the digital divide between affluent and poor schools, high-income and low-income homes, and white and non-white families continues to diminish, technological expertise, or the ability to use available technology resources effectively, is becoming critically important. Our K-12 schools and undergraduate institutions have recognized the value of expertise for students and teachers alike, crafting and implementing local, state,

and national technology standards that have begun to define technological literacy in broad, interdisciplinary ways (ISTE NETS, 2007).

Doctoral English education programs prepare their graduates to be agents of change in their future institutions. Doctoral students need ample opportunities to consider the implications for content, instruction, and research in their field created by the new technologies. As teacher educators, doctoral graduates must be prepared to model meaningful technology integration within the content and pedagogy of English language arts; as researchers, they must be equipped to see technology as a powerful tool and worthy subject; and as scholars, they should be invited to approach technology in its own right, examining it with the theoretical lenses and critical tools that are available to them. Ideally, English education doctoral programs will emphasize the content and pedagogical approaches this chapter has described, though we realize that our recommendations, like those made by Dwight Burton over two decades ago, are subject to change. As new technologies and new digital literacies emerge, our best policy is to maintain the high standards that Burton set forth for our profession, while widening our discipline to include those technologies that will continue to shape our teaching and our research.

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