

Why Technology Isn't Making a Difference: Coming to Terms with Ubiquitous Learning in High School Classrooms

Erica C. Boling, Graduate School of Education, Rutgers University, New Brunswick, New Jersey, 08901
Email: ecboling@rci.rutgers.edu

Abstract: This qualitative study investigated teachers' and students' participation in a 1-to-1 laptop initiative. The study explored how high school teachers' beliefs about technology and education impacted classroom instruction. Findings revealed how teachers' conceptions of English education and their predominantly logocentric view of language reinforced individualized instruction and a transmissive model of education. Findings alert educators to the views and beliefs of technology integration that can undermine collaborative and transformational uses of technology.

The advent of the Internet and various forms of information and communication technologies (ICT) have created an information-age which is redefining what it means to be literate in today's society. From cell phones, email messages and digital libraries to online banking, technology is playing an increasingly significant role in our lives (Leu et al., 2004). As technology presents new possibilities for communicating and accessing information, the literacy practices in which people make meaning, communicate, and express themselves are continually evolving (Leu et al., 2004). Now, perhaps more than ever before in the history of adolescent literacy education, the "demands of new technologies and the complexities of living in a highly globalized society" are seriously taxing educators' capacities as a profession to respond to adolescents' needs in ways that "will enable them to become fully functioning citizens of the 21st century" (Alvermann, 2000, para. 4). In response to today's Digital Society and a need to prepare students for the literacies that are becoming central for accessing, acquiring, and critically analyzing information, local, state, and federal initiatives have been created to assist teachers to effectively integrate technology to support student learning (NCATE, 2006). In an effort to support preservice and practicing teachers in meeting these initiatives, teacher educators are faced with new challenges to "prepare graduates who are capable and committed to using technology as a learning tool" (Howland & Wedman, 2004, p. 240). These challenges, however, are occurring at a time when far too little research exists on these literacies and the ways in which both teachers and students acquire the skills that are essential to succeed in today's information-rich world (Leu et al., 2004). A number of researchers have found that technology is frequently underused, poorly integrated into classrooms, and seldom impacts or alters teachers' regular teaching practice (Cuban, 2001; Hennessey et al., 2005). In addition, Goodson and Mangan (1995) have argued that relatively few teachers are integrating new technologies into subject teaching in a way that "motivates pupils and enriches learning or stimulates higher-level thinking and reasoning" (p. 14). The purpose of this study was to investigate how technology was used in ninth and tenth grade classrooms where all teachers and students had access to their own wireless, laptop computers. The research questions guiding the study were a) How do high school English teachers, during their second year of the laptop initiative, use technology to support teaching and learning? and b) How do teachers' beliefs about the role of technology provide insight into the ways in which technology was being used?

Related Literature

A number of researchers have described how technology is often underused and poorly integrated into classroom practice (Cuban, 2001; Goodson & Mangan, 1995; Hennessey et al., 2005). Some researchers have argued that encouraging changes in teachers' instructional practices and their beliefs toward technology integration can present more of an obstacle to technology integration than having limited resources (Rogers, 2002). Studies have revealed that the process of changing teachers' pedagogical thinking can be quite slow, and there is still much to learn about how to support teachers in making these changes (Borko & Putnam, 1996; Kerr, 1991). Lagrange et al. (2001) have argued that the predominant focus of most current research has focused on the difficulties that students confront when learning with ICT and not on teacher learning. In an effort to further explore teacher learning and beliefs in relation to technology and education, the researcher designed the current study with the belief that knowledge is socially constructed. She also designed the study believing that literacy learning is ultimately multimodal in nature. A multimodal approach to learning requires educators "to take seriously and attend to the

whole range of modes involved in representation and communication” (Jewitt & Kress, 2003, p. 1). When viewing technology integration from a multimodal perspective, the meanings of words and images, “read or heard, seen static or changing, are different because of the contexts in which they appear -- contexts that consist significantly of the other media components” (Lemke, 1998, para. 2). A multimodal view recognizes how “written-linguistic modes of meaning are part and parcel of visual, audio, and spatial patterns of meaning” (Cope & Kalantzis, 2000, p. 5). According to Lemke (1998), current theories and teaching of literacy “have been long been too logocentric,” where language alone is seen “as a reliable medium for logical thought,” and where written language is perceived “as the primary medium of, first, authoritative knowledge, and lately of all higher cognitive capacities” (para. 3).

Methodology

Both deductive and inductive analyses were used for qualitative data following grounded theory and constant comparative methods (Glaser & Strauss, 1965). The study followed teachers and students who participated in a district-wide, one-to-one laptop initiative where all teachers and students received wireless, laptop computers. The study began at the beginning of the school year when the district was entering its second year of the laptop program. The researcher documented how six high school English teachers integrated technology into their classroom instruction and how students responded to the use of laptop computers in their classes. The researcher conducted 59 classroom visits and interviewed each teacher and 10 focus students. In addition, she collected descriptions of class assignments and invited each teacher and over 120 students to complete two online surveys. All interviews were audio recorded and transcribed. During analysis, the researcher noted common patterns and inconsistencies in responses. She noted and coded all information that directly related to research questions and that revealed teachers’ views of literacy learning and technology integration. When patterns emerged during analysis, the researcher revisited and coded data that had been collected to see if they confirmed initial findings. When patterns of responses appeared to be supported with more than one example and by more than one participant, the researcher noted this and continued to analyze and code for these patterns. Using the software program *Nvivo*, she periodically searched through data to see if new codes supported initial findings. This searching, rereading, and coding process continued until no new codes emerged.

Findings

Although teachers had various opportunities to participate in technology workshops, were involved in the laptop initiative for over a year, and were supported by administrators who wanted a stronger emphasis on problem-based learning, findings revealed that teachers’ predominant uses of technology were to organize information for the sake of efficiency and to use the Internet for information seeking purposes. During class, students used technology for both academic (e.g., taking notes, giving presentations) and personal (e.g., viewing music videos, writing instant messages to friends) reasons. Although the level of integration varied across classrooms, the majority of observed instructional practices continued to reflect the typical I-R-E (initiation, response, evaluation) pattern and teacher-led discussions that are common in many high school English classrooms (Applebee et al., 2003). Findings related to teachers’ conceptions of English instruction and technology help shed light as to why their pedagogical practices did not change. Findings also reflected how teachers struggled to see how technology could play a role in enhancing student learning and English instruction. Despite a district-wide, professional development focus on technology integration, teachers’ views of literacy learning and ways of knowing appeared to remain very “logocentric,” placing an emphasis on how meaning is made through language and text (Lemke, 1998). Teachers’ perceptions of technology integration and their subject matter reinforced these views and often resulted in a use of technology that mirrored their usual, ongoing classroom practices. For example, one teacher clearly stated her views when she commented how English class consisted of mostly “reading, writing, and discussing.” She then stated that she believed technology did not play a “prominent role” in the English classroom. When comparing students’ engagement during class, a second teacher’s views of English education and technology were revealed. He described how “there are still plenty of students who just love to write with a pen. And those are the students that will become English majors probably.” A third teacher’s revealing comments were made when she described the process of teaching students to write essays and conduct research. She explained how students had to first learn the “traditional” way and “imitate first, innovate later.” She added, “Then you can play with technology, but first you have to do it the proper way. First you have to do it with slates and chalk then you can get into all the other stuff.” She then added, “It doesn’t enter my mind that it can be done the right way with technology the first time.” When a fourth teacher described her views about technology and the research process, she described how laptops were used more for “individual research and development” rather than for collaborative and group work. All teachers’ comments supported and reinforced the limited use of technology that was observed in each classroom.

Conclusion

Research has revealed that instead of actively engaging students in practices that support literacy learning, the typical pattern of instruction found in high school classrooms is teacher-centered and places a heavy emphasis on the transmission of information. Applebee and his colleagues (2003) have argued that such patterns of classroom instruction actually hinder rather than help the education of students. Viewed from a sociocognitive perspective, this type of instruction provides “very little room for the exploration of ideas, which is necessary for the development of deeper understanding” (Applebee et al., 2003, p. 689). This study revealed how specific views and beliefs about technology and English education might limit teachers’ efforts or desires to use technology in more innovative and collaborative ways. The study provides additional insight into the challenges and complexities that surround technology integration. It also highlights areas of research that need to be further investigated if teacher educators, researchers, and administrators hope to promote change in teachers’ classroom instruction. As researchers continue to explore the various ways in which technology can facilitate knowledge-building in collaborative spaces, they should also explore effective ways for conveying this knowledge to classroom teachers. As new information is shared, researchers should also look closely at the ways in which teacher education and professional development programs are (or are not) impacting individual’s views of technology integration and their conceptions of subject matter learning.

References

- Alvermann, D. (2000). *Grappling with the big issues in middle grades literacy education*. Keynote address, National Educational Research Policy and Priorities Board's Conference on Curriculum, Instruction, and Assessment in the Middle Grades: Linking Research and Practice, Washington, D.C., July 24-25, 2000. Retrieved June 15, 2005 from <http://www.middleweb.com/alvermann.html>.
- Applebee, A., Langer, J., Nystrand, M., & Gamoran, A. (2003). Discussion-based approaches to developing understanding: Classroom instruction and student performance in middle school and high school English. *American Educational Research Journal*, 40(3), pp. 685-730.
- Borko, H., & Putnam, R. (1996). What do new views of knowledge and thinking have to say about research on teacher learning? *Educational Researcher*, 29(1), 4-15.
- Cope, B., & Kalantzis, M. (2000). *Multiliteracies: The beginnings of an idea*. New York, NY: Routledge.
- Cuban, G. (2001). *Oversold & underused: Computers in the classroom*. Cambridge, MA: Harvard University Press.
- Glaser, B. G., & Strauss, A. L. (1965). *Awareness of dying*. Chicago: Aldine.
- Goodson, I. F., & Mangan, J. M. (1995). Subject cultures and the introduction of classroom computers. *British Educational Research Journal*, 21(5), 613-628.
- Hennessy, S., Ruthven, K., & Brindley, S. (2005). Teacher perspectives on integrating ICT into subject teaching: Commitment, constraints, caution and change. *Journal of Curriculum Studies*, 37(2), 155-192.
- Howland, J., & Wedman, J. (2004). A process model for faculty development: Individualizing technology with technology during field experiences. *Journal of Technology and Teacher Education*, 12(2), 239-263.
- Jewitt, C., & Kress, G. (2003). *Multimodal literacy*. New York: Peter Lang Publishing.
- Kerr, S. T. (1991). Lever and fulcrum: Educational technology in teachers' thought and practice. *Teachers College Record*, 93(1), 114-136.
- Lagrange, J. B., Artigue, M., Laborde, C. and Trouche, L. (2001) A meta study on IC technologies in education: Towards a multi-dimensional framework to tackle their integration. *25th Conference of the International Group for the Psychology of Mathematics Education (Utrecht)*, 1, 111-125.
- Lemke, J. (1998). Metamedia literacy: Transforming meaning and media. In D. Reinking, L., M. McKenna, Labbo, & R. Kieffer (Eds.), *Handbook of Literacy and Technology: Transformations in a Post-Typographic World*. Mahwah, NJ: Lawrence Erlbaum. Retrieved October 1, 2006, from <http://www-personal.umich.edu/~jaylemke/reinking.htm>.
- Leu, D.J., Jr., Kinzer, C.K., Coiro, J., Cammack, D. (2004). Toward a theory of new literacies emerging from the Internet and other information and communication technologies. In R. Ruddell & N. Unrau (Eds.), *Theoretical models and processes of reading, Fifth Edition* (pp. 1568-1611). Newark: International Reading Association.
- National Council for Accreditation of Teacher Education (NCATE). (2006). *Professional standards for the accreditation of schools, colleges, and departments of education*. Washington, DC: NCATE. Retrieved July 30, 2006, from <http://www.ncate.org/public/unitStandardsRubrics.asp?ch=4>.
- Rogers, L. (2002). Learning science with ICT: How do teachers make a difference? *The CeNTRE Seminar Series on the Relationship between ICT and Specific Subject Disciplines* (Coventry).