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Teaching With(Out) Technology: Secondary English Teachers and Classroom Technology Use

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Abstract

Technology plays an integral role in the English Language Arts (ELA) classroom today, yet teachers and teacher educators continue to develop understandings of how technology influences pedagogy. This qualitative study explored how and why two ELA teachers used different technologies in the secondary English classroom to plan for and deliver instruction. Analysis revealed that the English teachers, one novice and one experienced teacher, valued integrating technologies into their instruction and experienced similar challenges in that integration. The novice teacher believed that technologies played a primary role and centered her instruction on the available technologies, while the experienced teacher viewed technologies as having a secondary role, choosing to integrating technologies only if they added to her instruction.

Considering digital technologies' widespread availability and influence in everyday life, the use of different technologies for educational purposes is an important subject for teachers and teacher educators to consider. Whether referencing specific low- or high-tech tools for learning and instruction or the collective grouping of these tools, technology offers the potential to impact positively students' learning and teachers' instruction (Alvermann, 2007; O'Neil & Perez, 2003; Sternberg, Kaplan, & Borck, 2007).

Adding technology to instruction does not automatically create a meaningful change in learning or instruction, however. As Bruce (2007) noted, "Simply using computers or connecting to the network does not ensure that teaching is easier and more effective or that adolescents will be automatically well prepared to read, write, and live in the 21st century" (p. 17).

Meaningful technology use can support positive teaching and learning outcomes that include effective instruction, support for authentic learning, increased student learning, and alterations in teacher pedagogy (Culp, Honey, & Mandinach, 2003; Darling-Hammond et al., 2005; Pope & Golub, 2000). Such outcomes require teachers and teacher educators to consider purposefully the application and integration of technology for classroom teaching and learning, including potential advantages and limitations to technology (Swenson, 2006). English language arts (ELA) teachers must also consider implementing different technologies as they relate to expanding conceptions of literacy.

Rather than focusing solely on the single literacy of print, English teachers navigate multiple literacies (or multiliteracies) in the classroom, working across print, visual, and media literacies (National Council of Teachers of English [NCTE], 2006, 2008). To connect these literacies to their instruction and the students in the classroom, English teachers benefit from implementing the technological pedagogical content knowledge (TPCK) that allows them to "develop nuanced and critical understandings of these technologies and the literacies with which they are associated" (Swenson, Young, McGrail, Rozema, & Whitin, 2006, p. 353).

This article describes how two English teachers implemented technology in their instruction to support student learning, a framework for understanding the use of technology in the ELA classroom, and a qualitative study created to examine our technology use for instruction. The study's main themes are discussed: the role of the ELA teacher, the use of technology for ELA instruction, and the challenges and benefits of technology use in the ELA classroom.

Technology in the English Language Arts Classroom

Technology-enriched ELA classrooms have the ability to support student-centered, constructivist learning environments, which in turn, may offer advantages for student learning in the secondary English classroom. Technology has the ability to support students' higher order thinking skills, motivation, and engagement when used constructively.

In addition, teachers' instructional practices can be augmented when technology use aligns with their pedagogical beliefs. To support an active learning environment, teachers must engage students with technology, rather than simply using it as a reward (e.g., watching a movie, playing a game) or to project information (e.g., display a presentation; Ertmer, 2005; McGrail, 2007; Merkley, Schmidt, & Allen, 2001).

Many of the specific technologies integrated into English classrooms are used for creating certain products: a publishing program to create a brochure, for example, or word processing software to type an essay (Kamil, Intrator, & Kim, 2000; Leu, 2000). In many respects, the specific technologies available for the ELA are somewhat lacking when compared to other disciplines, where content-specific technologies are often more numerous, readily available, and more interactive (i.e., virtual manipulatives in mathematics, virtual museums in social studies and simulations in science; Alessi & Trollip, 2001). Instructional software exists to support and develop specific literacy skills, such as grammar and spelling, but these specific technologies are not always realistic for classroom use, as the timing and pacing of the instructional modules may require a great deal of time (Alessi & Trollip, 2001; Merkley et al., 2001). Moreover, many of these technologies are geared toward elementary-aged students, using drill-and-practice games to support beginning literacy skills (McKenna, Labbo, Reinking & Zucker, 2007).

Technology used for more general purposes can be implemented effectively in secondary English instruction. Publishing programs, concept mapping and graphic organizer software, word processing and presentation software, and the Internet support students' efforts to locate information, create products, and organize information related to their study of English (Anderson-Inman & Horney, 1997; Jones, 1994; Merkley et al., 2001; McKenna et al., 2007; Reinking & Watkins, 2000). Email, video conferencing, and discussion boards allow for engagement with those outside the English classroom, connecting students with the world beyond classroom walls (Merkely, Schmidt, & Allen, 2001).

Although technology developed specifically for ELA learning may be limited, the role of technology in the ELA curriculum is described as "both a facilitator and a medium of literacy teaching and learning" (Sternberg, Kaplan, & Borck, 2007, p. 420). English teachers generally offer a positive view of technology and support its use in the classroom (Hunt & Hunt, 2007; McKenna et al., 2007; Merkley et al., 2001; Moynihan, 2007; Sternberg et al., 2007; Webb, 2007).

A limited number of studies, however, focus on English teachers' use of technology for instruction. Existing research tends to explore short-term technology interventions and focus on student learning rather than teacher instruction, such as integrating a specific technology-based intervention (Kamil et al., 2000). Though limited, these studies are useful in exploring the different issues of technology use in the ELA classroom.

Issues of Technology Use in the ELA Classroom

English teachers must develop a level of technological skill that supports their usage of technology and their incorporation of technology in English instruction (Ruthven, Hessessey, & Brindley, 2004; Sternberg et al., 2007). Technology integration should be done to promote active learning and engagement rather than as an alternate means to deliver information (McGrail, 2007).

This integration of technology, instruction, and subject matter—and the connections between them—reflects the framework delineated by Mishra and Koehler (2006) as TPCK. As a framework for teaching with technology, TPCK requires that teachers are able to teach content-specific concepts using technology, implement strategies to support their pedagogy when using technology, and assess the abilities of different technologies to support student learning (Koehler & Mishra, 2009). Implementing technology for student learning is a complex act with many different issues to consider; an English teacher's ability to develop TPCK can, therefore, support that implementation in meaningful and effective ways (Swenson, 2006).

English teachers must consider multiple factors before implementing technology into their instruction to weigh the pros and cons for student learning. First and foremost, having access to technology is an advantage, but access does not directly correlate with effective usage (Cuban, Kirkpatrick, & Peck, 2001; Sternberg et al., 2007). The use of any technology should enhance instruction for both the student and the teacher and add to student learning by supplementing instruction (Young & Bush, 2004). Consequently, the use of technology in the English classroom should not replace strong instruction, negatively influence the quality of instruction, or decrease student opportunity for creativity or replace key instructional materials.

By connecting a specific technology to instruction, students have the opportunity to use the technology that is appropriate for the academic setting (Young & Bush, 2004). For

example, English teachers may first present persuasive writing in a formal essay assignment, with students using a word processing program to create their compositions. Students may then rewrite their persuasive essay to suit the medium of a blog or discussion board to better understand how writing differs in different venues and for different audiences.

In addition to these considerations, English teachers must balance the multiple challenges of using technology in the classroom, from the simple act of turning on a computer to troubleshooting problems with software. Teachers must manage limited access, poor or nonexistent technical support, out-of-date infrastructure, and few resources for implementing technologies into the curriculum. Even the desire to incorporate technology into instruction may be problematic, since time is limited time to learn about and become proficient with different technologies (Ertmer, 1999; McGrail, 2005; Ruthven et al., 2004).

Because technology is constantly evolving, teachers may struggle to stay aware of possible technologies and lack access to targeted information, such as practitioner-oriented articles that describe technology use for instruction. These issues contribute to the divide between the technology used in schools and the teachers' knowledge of technology's instructional applications (Hughes, 2005; Young & Bush, 2004).

Certain guiding principles can help English teachers determine if and when technology should be used for instruction. Teachers must first determine their goals for instruction and technology usage, then reflect on their instructional delivery with the available technology to determine the potential needs of students, such as scaffolding prior to a technology's use or additional time to complete a technology-infused activity. Teachers should determine if the technology's instructional advantages align with their teaching pedagogy, as well as their instructional goals and desire for technology (Hughes, 2005; McKenna et al., 2007; Ruthven et al., 2004; Sternberg et al., 2007; Young & Bush, 2004).

Teachers' personal experiences with technology, as well as previous successful instruction with technology, are important factors in determining technology usage (Hughes, 2005). Additionally, technology is more likely to be used when it allows teachers or students to be more efficient and effective in completing a task (Ruthven et al., 2004). Technology is also more likely to be used when teachers understand how the specific technology enhances instruction and provides individualized support for struggling students (Ruthven et al., 2004). When each of these factors are met, technology implementation is more likely to be successful for teacher instruction and student learning (Hughes, 2005).

While advantages exist to the effective integration of technology into ELA, McGrail (2005, 2006) said that, as of her writing, little research had been done specifically on how technology usage relates to ELA teachers' pedagogical practice or actual use of technology in the classroom. Long-term pedagogical change with technology integration often requires teachers to understand the value of technology during instruction for student learning, an element of TPCK.

As technology continuously changes, however, teaching practices and pedagogies may not. McGrail (2005, 2006) attributed this mismatch to a common barrier: lack of up-to-date and ongoing support for technology usage. Much of the existing training or professional development, at least at the time of her writing, focused on students using technology, generally, as opposed to teachers using technology for instruction (McGrail, 2005, 2006; see also Sternberg et al., 2007).

The Study

A qualitative study using case studies (Litchman, 2006; Patton, 2002) was created to explore how English teachers use different technologies to support their ELA instruction. Case studies are comprised of a small sample of participants in order to understand a specific phenomenon. Stake (2006) best described a case study as creating a "picture" for others to see and experience the phenomenon being studied. Case study research was an appropriate method for this study, as it allowed us to develop an in-depth understanding of teachers' experiences with technology and observe a phenomenon (technology integration) that would be difficult to measure without observations and interviews (see Creswell, 2007).

In this study, the following research questions were asked as we examined the experiences of two teachers surrounding technology:

1. How do these secondary English teachers consider technology when planning for classroom instruction?
2. How do these secondary English teachers use technology in their classroom instruction?
3. What factors or beliefs influence these secondary English teachers' planning for and use of technology for classroom instruction?

Participants

Two ELA teachers took part in the study over the course of one academic semester. Kathy, an experienced teacher, was in her 14th year of teaching. Prior to obtaining her teacher certification at a small, private university, she had earned an English degree from a midsized public Midwestern university. At the time of the study, Kathy was also pursuing a master's degree in English education at a small, private college. Kathy taught two classes of ninth-grade English and three classes of 10th-grade honors English.

Susan, a novice teacher, was in her second year of teaching and had recently graduated from the English education program of a large Midwestern university. Susan was also pursuing her English as a second language (ESL) certification. Susan taught a combination of courses, including three ninth-grade English classes, two classes of English for ESL students, and one class of vocational 12th-grade English in the high school's alternative/vocational school. She was on the school technology committee that explored technology available for instructional use.

Setting

Both teachers taught in the same suburban Midwestern high school, with a population of approximately 1,500 students in ninth through 12th grades and a graduation rate of over 85%. The school was located on the outskirts of a midsize city, drawing mainly middle-socioeconomic-level students from the local city's suburbs. The school day consisted of seven instructional periods, each 45 minutes long.

Observations for the study took place in Kathy's classroom. Susan, as a traveling teacher, also taught ELA in Kathy's classroom, allowing data collection to take place in the same setting. This classroom included two rows of student desks on each side of an open center aisle. The teacher's desk was at the back of the classroom with a computer and speakers connected to an electronic whiteboard (SmartBoard) at the front of the classroom. Each observed class consisted of 29 ninth-grade students. As ninth-grade English teachers,

Kathy and Susan worked with other ninth-grade teachers frequently to create grade-level curriculum and sequence instruction.

Both teachers had access to one departmental computer lab, which was shared with approximately 15 other teachers. At the time of the study, the school was experiencing significant budget cuts from the state in addition to the removal of professional development days. As such, previously planned professional development focused on technology was eliminated. While the school had SmartBoards in classrooms and encouraged teachers' use of this—and other—technologies, limited resources existed to learn about the functions of the SmartBoard to support instruction. A schoolwide technology support staff member was available for technology troubleshooting and installation only.

Data Collection

In order to establish triangulation (Patton, 2002), multiple sources of data were collected: classroom observations, individual interviews with each teacher, and member checking of the data during the data collection. Data collection took place over the course of one 18-week academic semester. The teachers were observed 10 times each, with observations approximately 45 minutes in length. Susan was observed for one instructional period. Due to the timing of the school day, Kathy was observed for the last 10 minutes of one instructional period and the following full instructional period of the next.

All observations focused on several criteria: the process of introducing and delivering instruction; the observable benefits and challenges of the different modes of instruction; students' responses to instruction; transitions between instructional activities; classroom dynamics; and teacher characteristics. Observations were structured to allow a researcher to sit unobtrusively in the back of the classroom.

Kathy and Susan stated that they were comfortable being observed, as observations by practicum students and administrators occurred regularly in their classrooms. The researcher (i.e., the first author, Flanagan) did not interact with the teachers or the students during observations; thus, the researcher's role was strictly that of an observer (see Litchman, 2006; Patton, 2002).

The focus of this research study (i.e., instruction with and without technology) guided the observations and the notes taken (as in Creswell, 2007). For instance, a student's discussion of a favorite technology with a peer was not recorded, while a teacher's comment to a colleague about using PowerPoint was recorded.

Interviews were semistructured in nature with a generic set of questions developed for each interview. Questions were drawn from Kathy and Susan's experiences to better understand and explain instances in the data, as well as from known benefits and challenges with technology integration noted in research (Creswell, 2007).

Kathy and Susan were each interviewed three times: prior to the observations, approximately halfway through the observations, and at the conclusion of the observations. Each interview took place in a quiet location, such as Kathy's classroom after school or in the English Department workroom, although Kathy's second interview occurred via email due to scheduling conflicts. Member check (Litchman, 2006) occurred after the fifth observation and 10th observation; member check was 100% with both Kathy and Susan.

The initial interview focused on each teacher's pedagogy, instruction, planning for instruction, and examples of instruction, with questions focused on the teacher's use of technology. For example, the teachers were asked to describe instances when technology was successful or when challenges were experienced, planning processes with and without technology integration, the importance of technology in their practice, and their individual teaching philosophy.

The second interview questions were developed from classroom observations to clarify or explain an observation, with differences between specific interview questions resulting from differences in observations. Susan's interview focused on the strategies she used to keep students engaged during instruction and the technology she used for instruction, for example, while Kathy's focused on the challenges she faced with technology and her students' preferences for technology. Both interviews addressed potential instructional strategies if specific technologies were not available for use.

The final interview asked each teacher similar questions regarding preferred teaching methods, the role of technology in the classroom, and benefits and challenges to technology use. The teachers were also asked whether student behaviors and classroom practices were similar on days they were not observed. Specific questions were also developed from each teacher's observations: Susan was asked questions focused on her different usage of technology and students' interactions with technology, while Kathy was asked questions focused on her teaching experiences, teaching style, and students' engagement during different types of instruction. All interview questions were derived from observations and from common patterns with technology integration identified from the literature (see Ertmer, Ottenbriet-Leftwich, & York, 2006; Hughes, 2005; McGrail, 2005; McKenna et al., 2007; Ruthven et al., 2004; Sternberg et al., 2007; Young & Bush, 2004).

Data Analysis

For case study analysis, Creswell (2007) recommended that data be drawn from multiple sources, including interventions and extensive observations. With these, instances in the data emerge to create a case study of each participant's experiences. To examine the research questions, data were sorted into common codes for both Kathy and Susan.

First, for each research question, the data were read to identify specific instances of technology use during observations and interview responses. These instances were then used to create an initial set of codes to represent the ideas emerging from the data. For example, codes were created that identified lack of access to the computer lab, instruction without technology, types of technologies used in the classroom, and student engagement when using technology. Data were then sorted into categories to represent groups of codes. For example, all of the data corresponding to a challenge with technology were sorted into a category called "challenges"; all of the data corresponding to how a teacher planned for instruction were sorted into a category called "planning."

Second, in order to best represent the data and explore the research questions, related categories were combined to created overarching, meaningful themes. Themes were used to describe events in the interviews and the observations for each teacher. Each theme combined several smaller categories of related ideas, such as collapsing the factors that mitigated the use of technology into one category labeled "challenges to technology use."

As one example, when observations suggested that the students were not paying attention to an audio recording of a novel (i.e., playing with pencils, needing redirection from

Susan or Kathy, and using the incorrect book page), the occurrence was categorized as "challenge to technology use." The themes developed are as follows:

- Planning for instruction: Teacher descriptions or demonstrations of the development or adaptation of instruction and instructional materials, with and without technologies.
- Role of technologies in the classroom: Roles and perceptions of technologies by the teacher, including technological literacy.
- Benefits of technologies: Instances when teacher or student benefited through the use of technologies.
- Challenges to technologies: Instances when teacher or student was hindered by the use of technologies.

As with the interview questions, themes were derived from the data as well as from common ideas found in research related to technology integration. An individual independent of this research study reviewed 30% of the data for reliability of thematic coding and interpretation. In order to do this, the first author operationally defined each theme and gave examples from the data. Next, Flanagan and a rater coded several instances together without disagreement. The rater then independently coded the data, randomly selected from interviews and classroom observations across teacher. Reliability was 100%.

Findings

Both Kathy and Susan incorporated different technologies into their instruction, guided by their self-explained views of teaching, using it to support their instruction and their students' learning. The teachers differed, however, in how they planned for and implemented the technology used in the classroom (see Table 1 for a summary of findings).

Table 1
Summary of Findings

Response Categories	Kathy	Susan
Planning for instruction	• Plans ahead • Always plans "back-up activities" when using or not using technology • Relies on previous experiences • Continual reflection of her teaching	• Values planning ahead • Continues learning how much to teach in an instructional period • Hesitant to ask for support from more experienced teachers
Planning for instruction with technologies	• Used if adds to instruction (secondary component of instruction) • Re-uses technology-based materials • More careful, advanced planning	• Used from the beginning (primary component of instruction) • Re-uses technology-based materials • Advanced planning

Benefits and challenges to technologies	• Time needed to make sure technology works ahead of time • Lack of training and knowledge about available technologies • Lack of access • Potential increased student engagement • Feels more confident in own abilities when sees that students benefit from instruction with technologies • Technology literacy	• Frustrations if technology does not work or students respond in appropriately • Distractible students • Lack of training and knowledge about available technologies • Lack of access • Potential increased motivated and engagement of students • Technology literacy
Role of technologies in the classroom	• Secondary role • Valuable component of instruction • "There are so many things that I can use technology for that I can do without technology [...] I don't rely on technology. I am at the cusp of how helpful it can be, but I also know that you can get so many things without it" • Used technology during four observations	• Primary role • Valuable component of instruction • "Everything—being able to get to all students at one time instead of individual computers and students need to know how to use technology, so should be part of the curriculum" • Used technology every observation (10)

The English Teacher's Role

Both teachers' technology use was influenced by the beliefs they held on their role in the ELA classroom. Kathy saw herself as a mediator who motivated students to learn, explaining, "Everyone can be motivated, but I cannot motivate everyone. I want to teach the students how to learn and not feed them information."

In reflecting on her teaching, Kathy described how past experience allowed her to choose which methods "worked" and which needed adaptation. From her perspective, "traditional methods," such as paper-based assignments, discussion, group activities, and lecture were more suited to her classroom than those methods incorporating technology:

> I go back to what I learn best with. I think that, in English, traditional methods—especially with literature, grammar, and mechanics—just work. What kinds of technology can you use to analyze the texts? [It is more] practical to use those traditional methods, it makes sense.

Kathy added technology to her instruction only if she believed it provided additional advantages. Across all 10 observations, Kathy used two different technologies four times: a SmartBoard and audio recording CDs of the novel *Great Expectations*. Kathy credited

her years of teaching experience as the reason she could plan and deliver instruction effectively, regardless of her technology use. In Kathy's view, her knowledge of the available resources allowed her to choose the instructional method that best suited her purposes, technology-based or otherwise.

Much like Kathy, Susan identified herself as a facilitator of student instruction: "I want the students to take charge of discussion. I obviously lecture at times, but I like for the students to be in control, and I look for their input when planning projects and due dates." She drew upon her former experiences as a student teacher to plan her instruction, including how much time a specific topic would take to teach and how to deliver instruction to meet the needs of the students. As a first year teacher, however, Susan was often unaware of instructional resources available at the school until informed by another teacher.

Susan explained that she preferred teaching methods that engaged students through technology integration. In each of the 10 observations, Susan used either a SmartBoard or CDs of the novel *Great Expectations*—and often both. While these were the same technologies Kathy used, Susan used them with a higher frequency: 10 times versus four times. She believed student engagement was an important aspect of how and why she implemented technology into her instruction:

> I try to use [the SmartBoard] every day, even if it is just as simple as putting a schedule on a board. If I have something to lecture on, I create a PowerPoint so [students are] engaged in some way and can follow along, instead of listening to me talk.

Teaching with Technology in the English Classroom

While both Kathy and Susan saw value in using technology in their teaching, they approached technology usage differently in both their planning and their classroom instruction. Kathy began her planning by identifying instructional objectives before then considering the technology available to support those objectives. One frequent challenge she faced in her planning, for example, was the availability of the school's computer lab; while the technology might support her chosen objectives for a lesson, the inability to use the computer lab for that lesson required Kathy to consider different options and remain flexible in her instruction..

Susan began her instructional planning by considering the technology available for the lesson and then identifying the instructional objectives for the lesson. By considering specific technology before she planned her instruction, Susan believed she could identify potential problems she or her students might have with its use, including the need for additional instructional time.

Because she traveled room-to-room, Susan also had to consider the classroom she was using and the resources available in that classroom when planning her instruction. She noted that it was often difficult to plan instruction with certain technology, such as the computer lab, because she still struggled with pacing her instruction: "We'd been doing a webquest with *Great Expectations*. I gave them four days in the lab [to complete it] but we only needed three....How long should I give them to type? How much time in the lab do I give them?"

Susan saw technology as having a primary role in her classroom instruction, for example, when she was able to reach all the students at once by using the SmartBoard during a

lesson, as opposed to using individual paper-based materials. Susan saw her students' engagement with technology supporting a more active learning environment in her classroom, as well, such as when Susan said that she would use technology even if it were not readily available in her classroom. She said she would borrow a projector from the school library to display slides on an overhead or a whiteboard: "Students need to know how to use technology, so it should be part of the [teacher's] curriculum."

Susan specifically focused on taking "full advantage" of the SmartBoard in her daily instruction. Across observations, she used the SmartBoard to show agendas, provide content, lead grammar activities, administer quizzes and present film clips. Susan often lectured from a PowerPoint presentation displayed on the SmartBoard. Using the classroom speakers installed in the ceiling, Susan (like Kathy) played audio recordings of novels under study via the computer in the classroom.

Kathy saw technology as an enhancement to her instruction, preferring to use no technology if "there was no clear or compelling reason to use it." As she explained,

> There are so many things that I use the technology for that I could do without it. I think in English we don't need it—we need a typewriter, a pencil, and a book. There is so much [technology], almost too much. I don't rely on technology....I know how helpful it can be, but I also know that you can get so many things without it. I don't think of it first as I think younger teachers might do....

Kathy used the SmartBoard, for example, with premade activities or "on the fly" teaching, such as showing students a picture of a term after looking it up in Google images. She also used worksheet-like pages she had created in Microsoft Word or Publisher to display images of concepts for discussion, vocabulary terms, and comparing and contrasting activities. Kathy was comfortable with how she used the SmartBoard but admitted that she would like to know other ways to use it in order to take full advantage of its capabilities.

Challenges of Technology in the English Classroom

Interviews and classroom observations revealed the greatest challenge to any technology usage in the classroom by these two teachers was simply a lack of training. Kathy had no formal training or information on manipulating the SmartBoard or using it for instruction. Despite being a member of the school's technology committee that decided to purchase the SmartBoards, Susan also had no formal training. Even though she felt comfortable using the SmartBoard in the classroom, Susan believed she would benefit from training focused on its features for classroom instruction. Both teachers explained that what they knew about using any technology during instruction typically came from trial-and-error usage or another colleague's expertise.

Due to her lack of experience and training with the SmartBoard, Kathy acknowledged her fear and nervousness associated with using the newer technology: "Last year, when [the SmartBoard] was first installed, I would only use it with Honors students because they were more forgiving [of my mistakes] and helpful. I was far more nervous [with other students]."

She added that her fear of technology tended to dissipate with more experience and knowledge, such as when she realized that students enjoyed helping her use the SmartBoard. Susan, on the other hand, was more confident in her knowledge of how to

use the available technology and learn the needed functions of the technology as she used it, such as learning how to play a movie or create quizzes to display on the SmartBoard.

Unreliable technology was another challenge for Kathy and Susan. The teachers described several unsuccessful experiences when different technologies did not work, requiring them to quickly change their instructional plans. This challenge was compounded by having one technical assistance person for the entire teaching staff, causing the technological problem to remain unaddressed for several days and requiring additional changes to planned instruction. In interviews, Susan noted the challenge of using technology when it did not work properly and she was unable to troubleshoot the issue. For example, Susan was unsure how to save her writing on the SmartBoard after navigating to another page and would have to pause instruction to correct this before moving on to the next point.

Lack of access caused challenges for Kathy and Susan, as well. When either teacher wanted students to use an individual computer, they struggled to reserve time in the English departmental computer lab. They explained that lab time had to be requested weeks in advance, especially if the lab was needed for more than one class period. Having to estimate the lab's use so far in advance compounded the difficulties associated with using the computer lab: planning instruction far in advance and teaching students to use the technology. Both teachers also acknowledged the difficulty of being able to access a document camera to display worksheets or other printed materials (i.e., a passage from a book or an illustration). Without access to the document camera, the teachers had to retype worksheets used with the SmartBoard each time to create an electronic version.

Lastly, Kathy and Susan saw students' usage of technology as a challenge, as well. Observations in Susan's class confirmed that students were more off-task during transitions between technology and while using it. As she moved between the SmartBoard and class discussion, for example, students would begin talking to each other or lose attention with the task at hand. Students appeared to enjoy the use of technology, however. During observations, they often loudly asked to use the SmartBoard, disrupting the flow of instruction or talking over each other in order to use it. Susan believed that students were "sometimes not mature enough to handle" technology in the classroom, since they seemed overwhelmed or distracted by it. Kathy did not experience these challenges. However, she attributed this fact to the overall structure and expectations of her classroom.

Benefits of Technology in the English Classroom

Just as Kathy and Susan experienced similar challenges in their use of technology, both acknowledged similar benefits. Both saw technology as a "savings" to their classroom. Since much of Susan's instruction utilized PowerPoint slides, she could reuse the slides and avoid remaking materials. Kathy also noted this benefit, adding that she also appreciated the savings of paper and time. By having students respond to questions she posted on the SmartBoard, she avoided providing each student with a paper copy of the activities.

Both teachers noted—and observations confirmed—that their students enjoyed the use of technology in their instruction, specifically the use of audio CD versions of the novels under study. Kathy viewed this technology, as well as others, as a way to differentiate instruction: "I do know that [the CDs] capture the attention...of my audio learners. One of my goals is to incorporate more audio technology into my class to address those learners."

Observations of the teachers confirmed that more students responded to questions when they were allowed to go to the SmartBoard to provide an answer or follow along in novels with the audio CDs. In Susan's class, for example, students eagerly volunteered to show their projects and respond to questions when able to use the computer or SmartBoard. When students appeared motivated or engaged by the use of technology, Susan saw this as an outcome of students' ability to interact with her instruction on the SmartBoard rather than listening to a lecture. Kathy agreed, noting that students liked to help her use the SmartBoard by "running everything" and "underlining things and writing on it." During observations in both classes, students who were quiet during other components of instruction, like whole-class discussion, volunteered more when they could use the SmartBoard.

Kathy and Susan valued teaching students how to use technology that could be used for other purposes. Kathy's students used Microsoft Publisher to create professional looking brochures rather than creating them with traditional materials, providing options for formatting, text, fonts, images, and spell-check, while teaching students how to use the specific software. Kathy also maintained a classroom website for students and parents to access copies of class materials and schedules. Susan believed it was important for students to be exposed to and provided experiences with different technology, such as creating websites and developing PowerPoint presentations. Both teachers noted that they needed to value technology, in part, because students were using it as part of their daily life.

Susan explained that it was important to consider different technologies and integrate them into instruction so that students were well prepared for life beyond the classroom; even if they were not college-bound, for example, she believed that students needed to know how to "search the web and find resources."

Similarly, Kathy believed it was "important to teach with technology to give [students] opportunities to use technologies and to get experiences with different skills to help them later and in other classes." As Kathy explained, "I, as a teacher, need to stay abreast and use what is out there to reach students. If [technology] is one way, then I need to do that and make it work."

Teaching With Technology

Technology offers a means to differentiate instruction, motivate students, improve instruction, provide visual cues, and improve learning, especially in the area of literacy (O'Neil & Perez, 2003; Shoffner, de Oliveira & Angus, 2010; Sternberg et al., 2007). Additionally, technology has a potentially positive impact on secondary ELA instruction when used in and selected appropriately for classroom learning (Swenson, 2006). The International Society for Technology in Education (ISTE, 2008) promoted the use of technology in instruction to customize students' learning experiences and provide a variety of instructional methods. NCTE (2010) echoed these benefits while emphasizing the importance of using technology to prepare students for postschool outcomes.

Throughout this study, Kathy and Susan stated many advantages of using technology in classroom instruction: reaching a variety of learning styles, differentiating instruction, providing visual supports, providing new experiences, and motivating students. For example, the teachers' use of the *Great Expectations* audio CDs allowed them to reach students who struggled to read the text independently, while the visual nature of the SmartBoard provided cues and illustrations to visual learners.

Kathy and Susan also emphasized the importance of technological literacy, defined as having the computing and technological skills to support learning, communication, performance, and overall productivity (Newby, Stepich, Lehman, & Russell, 2006). The teachers saw technology as a component of the English curriculum, supporting and enhancing instruction while preparing and supporting students to become technologically literate for their futures outside of the classroom.

Both teachers' instructional uses of technology align with the NCTE's (2008) position that English teachers must intentionally work to support students' proficiency with technology in order to prepare them for the 21st century. Secondary English instruction is a natural venue to integrate technological literacy skills, such as preparing presentations, creating professional brochures, and communicating through email (Bailey, 2009; Holum & Gahala, 2001).

A positive perception of technology use, coupled with positive experiences using the technology, encouraged the teachers in this study to integrate technology into their instruction. As other authors have noted, positive perceptions and experience can support teachers' view of technology as an intrinsic part of pedagogy and curriculum rather than a supplemental component (Shoffner, 2007, 2009; Ertmer, 1999; Levin & Wadmany, 2006/2007; Pope & Golub, 2000).

However, teachers must know how to integrate technology effectively into their instruction in order to maximize its potential for student learning (i.e., TPCK). As Cuban, Kirkpatrick, and Peck (2001) have noted, access to technology does not necessitate effective use. Susan and Kathy reported having little to no training with the technology available to them, despite their need for this support. This outcome is echoed across educational research: A major barrier to technology use is the lack of knowledge and training (Ertmer, 1999; Ertmer et al., 2006; Hew & Brush, 2007) coupled with a lack of support in how to use technology, either technically or administratively (Ertmer et al., 2004).

Kathy's and Susan's experiences revealed these same challenges: a lack of training in and experience with the available technology. Both said that additional time to prepare technology-rich instruction, increased support for technology use, and one-on-one training (specifically with the SmartBoard) would help them better integrate technology effectively in their instruction.

TPCK is an important element of a teacher's knowledge, since ineffective technology use may hinder instruction instead of supporting it (Hughes, 2005; Young & Bush, 2004). While instruction with specific technologies is an important component of technology use, teachers must be willing to use and learn about technology in the absence of such training. Kathy and Susan appeared to understand this differentiation, for example, noting their need for training with and support for the SmartBoard but continuing to learn about the different functions from their experiences and other colleagues.

Teaching experience may indeed lead to better or more effective uses of technology during instruction, independent of a teacher's experiences with a specific technology (Hughes, 2005; Ruthven, Hennessy, & Brindley, 2004). For example, Kathy's status as an experienced teacher may have supported more effective instruction, regardless of whether technology was used, while Susan's status as a novice teacher may have influenced her students' off-task behavior when transitioning between or using technology.

Implications

Despite its focus on in-service teachers, this study holds several implications for teacher educators and preservice teachers. Kathy and Susan noted their need for additional training and support to integrate technology more effectively into their ELA instruction. Such support for practicing teachers is a well-recognized issue, focused on teachers' abilities to use technology, generally, and to apply and integrate technology into classroom instruction, specifically (Ertmer, 1999; Ertmer et al., 2006; Hughes, 2005; ISTE, 2008).

While such training should be available to in-service teachers, teacher preparation should also include more focused work with technology to support preservice English teachers' understanding of technology integration in their future instruction. Moreover, preservice teachers' coursework should be grounded in the TPCK framework in order to address the manipulation of specific technologies for instruction. Such training would support the development of teachers' ability "to flexibly navigate the spaces defined by the three elements of content, pedagogy, and technology and the complex interactions among these elements in specific contexts" (Koehler & Mishra, 2009, Technology, Pedagogy, and Content Knowledge section, para 2)

Second, use of any technology is closely connected to availability, as seen in Kathy's and Susan's limited access to the school's computer lab and lack of access to different technologies suited to the ELA classroom. To counter this issue, preservice English teachers must learn how to remain flexible in their instruction while developing their understanding and use of available technology—from those provided by the school to those freely available through the Internet. Teacher educators must address specific technologies that support teaching and learning while developing preservice teachers' abilities to think creatively and flexibly when choosing and using any technology in the classroom.

Additionally, teacher education should model effective uses of content-specific technology and provide opportunities for technology-related instructional decisions beyond the typical stand-alone technology integration course. Both teachers in this study valued the use of technology in their teaching, despite the limitations they faced, encouraging researchers to examine how best to prepare preservice English teachers to integrate technology into their instructional practice.

Ultimately, preservice English teachers will become practicing English teachers who are expected to use effective teaching methods—technology-based or otherwise—for their English instruction. Thus, it is important to prepare preservice teachers effectively to know both when and how to integrate technology during instruction. Pope and Golub (2000) have suggested several guiding principles specific to English teacher preparation for instructional technology integration, including (a) introducing different technologies that support both instructional and pedagogical goals; (b) reinforcing that teachers should know how to effectively model the use of technologies to their students; (c) addressing how to evaluate technologies for instructional purposes; and (d) encouraging reflection and evaluation on instruction with and without technologies. These principles can be taught, modeled and reinforced with preservice teachers to support their instructional decisions when they enter the classroom.

Other fields, such as special education, elementary education, and science education, have suggested providing early experiences with technology use while delivering instruction and field experiences that model effective technology integration (Anderson & Perch-Hogan, 2001). When such experiences are not available, paper-based or video-

based case studies have also been used successfully to increase preservice teachers' awareness of different technologies and their integration into instruction (Boiling, 2007; Bulgar, 2007; Hewitt, Pedretti, Bencze, Vaillancourt, & Yoon, 2003; Van Laarhoven et al., 2008). Preservice English teachers would also benefit from experience with different technologies in the context of their methods courses to support understanding of their purposes in the classroom and when and how to use them for instruction.

Conclusion

While this study focused on the experiences of two English teachers and is, therefore, not generalizable, their experiences may parallel those of teachers around the country and across other academic content areas: a lack of support, a lack of training, a lack of access to technologies, but a desire to integrate technologies because of the advantages provided for student instruction. Both Kathy and Susan saw value in using technology in their instruction, despite limited access to English-specific resources to support that instruction.

The challenges of access to and resources for using technology in classroom instruction were balanced by the advantages of student motivation, engagement, and saved time in creating instructional materials. While both teachers illustrated different aspects of technology use in their instruction, their experiences offer insight into the role of technology in and value for secondary ELA instruction.

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