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Is Technology Used as Practice? A Survey Analysis of Preservice English Teachers' Perceptions and Classroom Practices

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Abstract

This survey study of preservice teachers analyzed if technology is used as practice in the English language arts classroom, and if these practices transferred from the methods classroom to the field experience and beyond. The author examined which technologies and experiences were valued and used by preservice teachers to discover if they thought it possible to transfer these methods from theory into practice. Teacher candidates' perceptions of integrating technology into their practices revealed their comfort or frustration with nontraditional teaching practices and classroom structures.

Despite thinking of myself as a techno-novice, it amazes me how much technology embroiders my life – both enhancing it and complicating it. On any given day, you can leave me a message, if not actually reach me, via three different email addresses; four different phones (cell, office, Internet, and home); instant and text messaging; and the U.S. postal service. I no longer compose manuscripts with pen and paper, but by word processing programs, first learned on the mainframe then the personal computer then the networked computer and now the laptop. I manage my calendar online in GroupWise, listen to and read news on the Internet, watch movies on my laptop, share digital photos from my personal file space on the Internet, listen to and watch music via video, research using the library's online database, and select and hold my library books using the online service. I share my writing with my co-authors via email attachment, as well as submit manuscripts via email or upload them to Internet sites designed to give access to both author and editors. The uploading of the document automatically converts it from a .doc file to an .html or .PDF file.

When I need a document stored on the hard drive of my campus computer, I RDP (remote desktop protocol) into it from home, retrieve the file and save it to my home computer's hard drive. Students submit their work to me on paper, on disk, as an attachment. They access their syllabi and assignments on my homepage and in Desire2Learn (D2L), an online course management system. Students communicate with each other between classes on an Internet discussion forum I have constructed for this purpose.

All of these technologies ask me to move past merely reading and responding to print texts to also reading and responding to digital texts. They require me to read and write in the languages specific to each technology's base of communication. They force me to be literate in ways my graduate school education never anticipated. These technologies pressure me to change my teaching of how to teach the English language arts, because they compel me not merely to practice with the technologies that embroider my life but integrate them meaningfully into the English language arts to enhance content and become content –not merely to practice technology but use technology as practice.

Being literate no longer means only mastering the ability to read a print text, understand and process its information, and hand write a response to it. Swenson, Young, McGrail, Rozema, and Whitin (2006) reminded English teacher educators, "With the growing range of texts available to students today, literacy skills have expanded to reading images, codes, and sounds in addition to words" (p. 223). The proliferation of technology in contemporary lives has moved English language arts (ELA) professionals to consider this new literacy (Gee, 2003; Yagelski, 2005; Swenson et al., 2005), one that encompasses reading not only traditional print publications but also media objects and the people to which they refer, social practices, critical perspectives, and other situational instances that require meaning-making strategies (Bruce & Levin 2003; Kinzer & Leander 2003; Merkley, Schmidt & Allen 2001; Pope & Golub 2000). For teacher educators, this phenomenon prompts the following questions:

- In educating preservice English teachers to support their own students to become literate members of society, how might English education programs integrate technology as practice?
- Does this practice transfer from the methods classroom to the field experience and beyond?
- What do preservice teachers value about using technology as practice?

In their 1997 report, the National Council for Accreditation of Teacher Education (NCATE) task force on technology and the new professional teacher observed the following:

Perhaps the best way the faculty can inspire teachers-in-training to use technology is to cast themselves as learners and to experiment fearlessly in the application of technology. The teacher education faculty can make themselves role models of lifelong learning if they create for themselves situations in which they must learn from each other and from their students.

The NCATE report warned teacher educators not to "treat technology as a special addition to the teacher education curriculum." Teachers should use technology as practice, not practice technology, a concern echoed by Kinzer and Leander (2003) when they called for "technology as practice (rather than simply material 'tool')" (p. 550). Recent essays also have detailed criteria to treat technology as pedagogical content knowledge (Jonassen, Howland, Moore, & Marra 2005; Pope & Golub 2000; Yagelski

2005; Young & Bush 2004), providing guidelines for integrating technology into the methods classroom that reflect real world applications instead of "as a tool to learn traditional [English language arts] skills and materials" (Swenson, 2006, p.163). In addressing the evolving nature of English education in light of new literacies and new technologies, Swenson et al. (2006) argued,

An examination of literacy practices involving technologies deserves special attention, not because they are separate, but because they are central to effective English education in a rapidly changing world. As Leu (2005) noted, the Internet as well as other kinds of newer technologies and new literacies afforded by the Internet are literacy issues, not technologies issues, for English and literacy educators. (p. 353)

Responding to questions regarding how English education programs might integrate technology as practice, the writers of these essays provide some answers. More importantly, though, they refine the field's understanding of literacy as they investigate the evolving nature of English as a discipline in light of the changing nature of its practices, which begs the question, "Is technology used as practice?"

This was one of the questions that prompted me, in 1997, to move my English language arts methods classes into a computer classroom, specifically as a response to the NCATE technology task force's mandate for teacher educators to make themselves role models of lifelong learning by integrating technology into practice. In conducting my methods classes in computer enhanced classrooms, I had hoped to approximate an environment similar to the future public school classrooms teachers-in-training would be instructing in and to provide an environment that encouraged technology as practice. I did not want to "treat technology as a special addition to the teacher education curriculum . . . [but as a] topic that needs to be incorporated across the entire teacher education program" (NCATE, 1997). As someone who had taught composition for years in a computer classroom, mostly for its ease in facilitating multistage writing workshop and rhetorical analysis, I learned that lessons taught in these classrooms encourage inquiry and independent learning. I eventually moved my literature classes into the computer lab (the writing classrooms were already overbooked). At that time, I figured that if these methods were helping university students become better learners, then the teacher candidates in my professional classes might benefit from this experience, too.

Teaching ELA Methods in a Computer Lab

Teaching in a computer classroom (where I taught in the past) or a computer lab (where I teach now) does not preclude me from teaching more traditional ELA methods, but allows me to model and integrate technology into ELA instruction. At my present university, there are no computer classrooms in the School of Education, only labs designed specifically for word processing and surfing, not instruction. When I first began teaching this way, much of the technology we used in the methods classes was needs driven: the teacher candidates and I had to figure out how to use the technology we thought would enhance the learning experience. Later, I modeled opportunities to integrate technology and designed workshops around evolving content that included a variety of applications and hardwares. We cyber-conferenced with local high school and middle school students through asynchronous email discussion, with and without attachments, by digitally inserting remarks into students' papers using the comments feature in MS Word. We surfed Web sites to find research sources, creating lessons for rhetorical and textual analysis.

We used different media forms, including video and digital cameras, to create lessons for nonverbal responses to texts. We used real time and after-the-fact online chat for

discussion. We investigated parental notification Web sources–technologies that were all free and shareable, came standard to most hardware purchases, or were widely purchased by school systems. We specifically explored technologies that we thought were available to most teachers with school computer access, no matter how antiquated or advanced that equipment might be. We thought that methods examined in preservice classes should cross class lines; hence, the technologies investigated needed to be free to the public user and replicate real world experiences.

In methods classes, teacher candidates had the opportunity to analyze, practice, and reflect on employing technology in their lessons. Individuals decided for themselves if they wanted to use technologies in the lessons they planned and implemented. Despite the experimentation and implementation taking place in the methods classes, two questions needed to be answered to gauge if, in fact, preservice teachers in English education were employing technology as practice. This survey study was designed to answer the following two questions:

1. Is technology used as practice and do these practices transfer from the methods classroom to the field experience and beyond?
2. When used, what do English education preservice teachers value about integrating technology into practice?

Methods

Setting

Situated at the northern residential border of Milwaukee, a midsize Midwestern city on Lake Michigan, the University of Wisconsin-Milwaukee has more than 28,000 students with approximately 2,100 in the School of Education. This school attracts faculty and students interested in advancing its commitment to diversity and has a mission "to meet the unique social and economic challenges facing urban schools" (School of Education, University of Wisconsin-Milwaukee, n.d.). The Early-Adolescence through Adolescence English Education program has approximately 200 intended and accepted students, working toward degrees and certification as undergraduate, graduate and postbaccalaureate-special students. Upon acceptance to the School of Education, students take a year and a half to complete the professional core of the program, starting in the spring.

Besides taking other classes in the program that first semester, students take their first methods class, a course concentrating on the teaching of texts. This class is held in a computer lab and does not have a field component except for a cyber-conferencing experience with local secondary school students. The following fall, students take their second methods class, also held in a computer lab, which concentrates on writing pedagogy, and the teacher candidates concurrently practice-teach at the middle school level for 15 hours a week. At this placement, student teachers try out lessons designed in that semester's methods class. During the subsequent spring, students practice-teach full time at the high school level from late January to the end of the public school academic year, generally late June. Although they are not in methods class that final spring semester, per se, these students meet on campus in a traditional classroom for a weekly seminar to share their teaching ideas and create their exit portfolios. Most certifiers student-teach in the urban public schools, although due to special circumstances a few practice-teach at schools in the local suburbs. There are as many students in the program who are products of the urban public schools as there are those from suburban and rural schools.

Data Collection

From fall 2002 to spring 2005, data was collected each semester over a period of 3 years from three English education certification groups. There were 27 students in the first group, 41 in the second group, and 30 in the third group – a total of 98 participants, ranging in age from 21 to 55. Students from each certification group responded to a series of three surveys (see appendix) administered at the end of each semester on an anonymous online discussion forum in a course management system, Blackboard in 2002-2003 and Desire2Learn thereafter. Students were identified upon logging into the course site, but the posting of their responses was done anonymously to the discussion forum.

The first survey was administered during the spring of the first methods class, a course that had one field component: an asynchronous cyber-conference with local 9th- or 10th-grade students. The teacher candidates digitally responded to student work by inserting comments into MS Word documents attached to emails. The second survey was administered in the fall during the second methods class, while the students were in their half-day middle school placements. The third and final survey was administered the subsequent semester at the conclusion of their full-day high school placements.

While they completed other computer-based activities in class, students responded to both the initial spring and fall surveys. Since the weekly spring seminar met in a traditional classroom, students responded to the third survey at their convenience. Out of 98 participants, 85% responded to the first two surveys, while 38% responded to the third survey.

Data Analysis

As someone who vigorously encouraged and facilitated university students to use technology in lesson creation and facilitated that use, I am a "participant-observer-researcher who not only observe[s] [her] subjects but interact[s] with them and, possibly, influences[s] them" (in the words of Stotsky & Mall, 2003, p. 137). Knowing this, I designed the survey questions not only to address the Conference on English Education Commission's (CEE) initiatives to test "models and examples [that] ...illustrate the standards in action" (Kingen, 2000, p. 329) but also to examine the benefits and drawbacks in using, embedding, or integrating these methods in their classroom experiences to analyze programmatic needs and trends in teaching. Responses to the questions generated further inquiries and explanations for additional research; thus, data analysis explored how the responses might contribute to both theoretical and practical teaching practices (Calfee & Chambliss, 2003; Stotsky & Mall). Collected data were analyzed both qualitatively and quantitatively.

Survey results were manually tabulated. With the first survey (see Table 1), responses to the first question were analyzed to catalog which methods, technologies, and experiences students learned, with the presumption they had at least participated in the cyber-conference since it was a mandatory requirement for the course. The technologies and methods listed in response to this question were then used as exemplars in the second and third surveys. Responses to the second question were analyzed to discover which methods were thought possible to move from theory into practice (See Table 1).

Table 1
Survey 1, Initial Spring Semester

Survey 1 Questions	a	b
Besides digital commenting and cyber-conferencing, what other computer assisted methods of English Language Arts instruction did you learn this semester? (Responses in column **a** indicate the percentage of respondents who employed technologies in the lessons other than cyber-conferencing and digital commentary. These technologies are identified in Table 4. Responses in column **b** indicate the percentage of respondents who only used cyber-conferencing and digital commentary or did not respond to the question.)	90.48%	9.52%
Do you think you will have an opportunity to use technology for assisted instruction purposes in your middle school placement? Why or why not? If so, which of these methods do you plan to try? (Responses in column **a** indicate the percentage of respondents who believed they will have opportunities to use technologies in their middle school placements. Responses in column **b** indicate the percentage of respondents who thought this not possible or did not respond to the question.)	36.84%	63.16%

Results from the second and third surveys (see tables 2 and 3), also manually tabulated, were derived from questions designed to generate yes, no, or no opinion responses (tabulated as "no, did not use"). Students then had the opportunity to explain their response in detail, including methods valued, explored, or practiced (see appendix).

Table 2
Survey 2, Fall Semester, Items with Yes/No Responses

Survey 2 Questions	Yes (Used)	No (Did not use)
Have you had an opportunity to employ other [than cyber-conferencing] computer assisted instruction (or other forms of technology) during your fieldwork placement? If yes, please describe the assignments or methods you employed (i.e., word processing, cyber-conferencing, digital commentary, Internet research, concrete poetry or collages, online chat or discussion boards, online grade books, blogs, PowerPoint presentations, WebPages, film, hypertext etc.) If no, just respond "no" and see question 2.	51.75%	48.25%
Did you ever investigate the use and availability of some type of online course programs like Desire2Learn in your fieldwork placement? If yes, why? If no, why not?	6.14%	93.86%
Do you think you will have an opportunity to use technology for assisted instruction purposes once you move into your full-time student teaching placement? If yes, why? If no, why not?	79.85%	20.15%

Table 3
Survey 3, Final Spring Semester, Items with Yes/No Responses

Survey 3 Questions	Yes (Used)	No (Did not use)
Have you had an opportunity to employ computer assisted instruction (or other forms of technology) during your high school student teaching placement? If yes, please describe the assignments or methods you employed (i.e., word processing, cyber-conferencing, digital commentary, Internet research, concrete poetry or collages, online chat or discussion boards, online grade books, blogs, PowerPoint presentations, WebPages etc.) If no, just respond "no" and see question 2.	90.71%	9.29%
Did you ever investigate the use of Prometheus or Desire2Learn, course-in-a-box products that [the urban school district] uses? If yes, why? If no, why not?	18.11%	81.89%
Do you think you will have an opportunity to use technology for assisted instruction purposes once you get a full-time teaching job? If yes, why? If no, why not?	90.23%	9.77%

Results: Integrating Technology into Practice

The data reveal that teacher candidates were integrating technology into ELA practice and, in many cases, exploring new literacies created through new media. They valued certain methods over others, but these seemed to be the technologies and methods that are readily available at schools, easily incorporated into practice, enhance content, or are valued and practiced by their cooperating teachers.

Survey 1

After completing the first methods class, before teacher candidates entered any classrooms other than through the cyber-conferencing experience, 90% of the respondents said they employed the following technology-enhanced methods in their lessons: word processing; rhetorical, digital text analysis; digital commentary; Internet research; found and concrete poem creation generated through digital sources; image collage to analyze text; online chat; discussion boards; PowerPoint presentation; word processing and graphic organizers to facilitate multistage writing workshop; email; and multimedia projects using digital camera and video for some type of analysis. Table 4 shows the percentages of the students who integrated the specific technologies into their lessons. Interestingly, 53% of the respondents created their lessons by first investigating online teaching resources (see Table 4).

Table 4
Technology Attempted in Lessons Created in the First Methods Class Prior to Field Experiences by 90% of Respondents

Technology Used in Practice	Students Practicing the Technology
Word Processing	6%
Digital Commentary	11%
Internet Research	27%
Texts Generated through Digital Sources	21%
Online Chat or Discussion Boards	21%
PowerPoint Presentations	6%
Multimedia Projects Using Camera/Videos	16%
Word Processing for Multistage Writing Workshop	27%
Online Teaching Resources	53%

In response to the question about whether there would be opportunities to integrate technology into their practice in their middle school placements the subsequent semester, the respondents had mixed expectations, revealing themes indicated in Tables 5, 7, 8, 10, 11, and 12. Sixty-three percent of the students did not think there would be opportunities to integrate technology at the middle school. Their commentary reflected not only a frustration over a perceived digital divide (their language) in the urban school systems but also a concern that these practices would challenge their ability to manage their classrooms. Conversely, some respondents saw the proliferation of technology as ubiquitous and, hence, necessary to modern learning. The comments in Table 5 typify their outlooks along these themes.

Table 5
Commentary Survey 1, Initial Spring Semester

Theme	Respondent Commentary
(Dis)Comfort	I really have no idea if I will have the opportunity to use technology assisted methods for teaching in my middle school placement. If I will, I don't know if I will use them because they probably take a lot of planning that I don't know if I'd be effective using them, and because I'm not very technologically-savvy myself.
Classroom management	I do not think that I will have the opportunity to use this method of instruction in my middle school placement. I think I would need to have the safety of a 3 year cushion of teaching before I[‘m] comfortable with using instruction like this. As computer friendly as I am, I still think I would need a nice ease into the profession when I first start out.
Access	Honestly, probably not. With all the budget cuts in th[is] . . . Public School system, I highly doubt that I'll have access to certain teachnological [sic] advances.
Relevancy	I think I will have an opportunity to use technology in my middle school placement because technology is everywhere. It's almost impossible to not use technology in any school.

When classes were held in a computer-assisted classroom space, preservice teachers used technology as practice, finding it relevant to modern learning. Surprisingly, at this stage in their development, they did not see this practice transferring into the real-world classrooms they would enter in their field placements.

Survey 2

Despite the mixed expectations about access to technology at the middle school level, 52% of the respondents the following semester explored lessons integrating technology and new media. Mostly, they created lessons that required word processing and Internet research, but they also used concept mapping, SMART board, PowerPoint, grade books and parental notification applications, Internet scavenger hunts, multimedia projects using digital cameras and videos, asynchronous email cyber-conferencing, Internet or CD-Rom skills remediation, and commercial applications purchased by the schools as shown in Table 6. At this stage in their development, surprisingly again, the teachers-in-training stopped using online sources to construct their plans and resorted to other means to create their lessons. It seems that technology use was now being practiced in the content and/or employed as an administrative tool. Conversely, the reasons given by the 48% who did not create lessons using technology seemed to mirror the respondents' fears expressed earlier in the program about unequal access and classroom management. Largely, their reasons for not integrating technology centered on their cooperating teacher's values and practices as indicated in Table 7.

Table 6
Technology Attempted in Lessons for the Middle School Field Experience by 52% of the Respondents

Technology Used in Practice	Students Practicing the Technology
Word Processing	42%
Cyber-Conferencing and Digital Commentary	3%
Internet Research	46%
Online Chat or Discussion Boards	3%
PowerPoint Presentations	24%
Multimedia Projects Using Camera/Videos	7%
Online Teaching Resources	7%
Online Grade Books	13%
Online Scavenger Hunts	16%
SMART board	3%
Online Course Management System	3%
Parental Access and Notification System	5%
Online Testing and Skills Remediation	5%
Online Writing Contest	3%
Multiple Functions Used on a Daily Basis	9%

Table 7
Commentary Survey 2, Fall Semester

Theme	Respondent Commentary
(Dis)Comfort	My co-op tended to want students to have a limited use of computers and the internet. The most the students were allowed to use the computers was to use dictionary.com. If I would have had more control in the classroom, I would have used the computer lab much much more.
(Dis)Comfort	My co-op didn't do any/much computer work with the kids, and I sort of followed her lead. I was overwhelmed enough with the newness of teaching, let alone trying new technology.
Access	We only had two working computers in our classroom, and I was not able to reserve the computer lab for more than a half-hour in the afternoon.

When the teacher candidates were asked if they thought they would have more opportunity to practice with technology at the high school level than they were doing at the middle school level, 80% of the respondents were more optimistic than they were before their middle school placements. Their commentary, though, revealed much about their attitudes toward "good" and "bad" schools, their fears about their own instruction, and what their students needed to succeed (see Table 8).

Table 8
Commentary Survey 2, Fall Semester

Theme	Respondent Commentary
Access	Yes. I am in a good school with computers.
Relevancy	Yes, I plan to incorporate technology ever[y] chance I can get. Students of all ages benefit from computer learning programs, researched information, film critiques, a general knowledge of how to use multiple programs associated with computer technology, etc. Students are also interested in technology so I believe it is up to the teacher (especially in urban schools) to introduce students to technology in the classroom, and also give them every opportunity to utilize it because schools are the focal area of their training and most urban students may not be introduced to technology or have the use of computers in their home. Technology is so important to advanced learning skills, and real world applications of knowledge.
(Dis)Comfort	Yes. Once I have the opportunity to set a room up and "[en]culture[ate]" the students to using technol[o]gy on a day to day basis I feel that technology such as D2L programs or cyber conferences would be very effective. Yes, because as of right now I feel a little more knowledgeable about reserving computers and having my students work on them.

The teacher candidates using technology as practice at the middle school level used it to enhance the content of their lessons. As the data indicate, they no longer used technology to research topics for lesson ideas but to enhance the content learned by their own

students. Those student teachers not using technology were influenced by their cooperating teacher's practices and perceptions of access to technology at their placements. Without their cooperating teacher's support, the teachers-in-training not employing technology expressed discomfort with time demands and classroom management. Apparently, "good" schools have technology and the support to use it.

Survey 3

Once the teachers-in-training moved into their high school placements, they overwhelmingly found the opportunities and the confidence to practice with technology. Ninety-one percent of the respondents employed some type of technology or new media as they explored teaching practices. Once again, the methods and technologies they valued (see Table 9) included word processing using digital commentary and email attachment for writing workshop purposes and Internet research. On an individual basis, the teacher candidates created lessons that employed online chat and discussion boards, online grade books with parental access, PowerPoint, rhetorical, digital text analysis, desktop publishing to create newspapers, magazines, scripts, and books, Internet scavenger hunts, online course management systems, email, digital cameras, and videos, and multimedia to respond to texts. The student-teachers expressed pride in their ability to integrate these technologies into their practices, but also indicated a concern for their own discomfort with time management, the costs of technology, and their students' abilities to work independently as indicated in Table 10.

Table 9
Technology Attempted in Lessons for the High School Field Experience by 91% of Respondents

Technologies Used in Practice	Students Practicing the Technology
Word Processing	87%
Cyber-Conferencing and Digital Commentary	18%
Internet Research	87%
Texts Generated through Digital Sources	14%
Online Chat or Discussion Boards	1%
PowerPoint Presentations	25%
Multimedia Projects Using Camera/Videos	1%
Online Teaching Resources	1%
Online Grade Books	25%
Online Scavenger Hunts	11%
Email	7%
Online Course Management System	1%
Parental Access and Notification System	14%
Online Testing and Skills Remediation	1%

Table 10
Commentary Survey 3, Final Spring Semester

Theme	Respondent Commentary
Relevancy and Classroom Management	I have conducted various lesson plans which have used computer assisted instruction. My senior students accessed the internet and various web site[s] in order to assess the validity of webs[i]tes, and judge their biase[s] while working on a research paper. Also, desktop publishing, word processing and internet has been used in building a children's book for one of my classes. These accommodations have been made within the scope of the teaching time, so it has its benefits and drawbacks. For example, students can access the internet at any time and have a tendency to get off track while working on the tasks at hand.
(Dis)Comfort and Access	Yes, I actually designed my own online course using Blackboard Prometheus as a [course management system]. I modeled many of my assignments after your course work. I found it to be very inspirational and one step closer to implementing technology in the classroom. I have two Advanced English Survey III classes and they would communicate between classes. My students were commenting and responding to each other every week on the texts we were reading. I would be able to communicate with them via email. Their parents also had a log in code if they desired. Many parents were able to monitor their child's progress through the online grade book, announcements, and assignments. The students and parents absolutely loved it. I had more success as far as quality of work and amount of work on time, all the time. I just wish it wasn't 300 dollars per year.
(Dis)Comfort	I have frequently used technology in the classroom. We take our district reading tests via computer, we use word processing for writing papers, the internet for research, and power point is available but I am just learning how to use it now.

Despite the apparent success expressed by some of the preservice teachers with technology as practice, 9% of the student-teachers were disappointed with unequal access and articulated their concern about a perceived digital divide. One student wrote, "There is only one computer in the classroom, making it difficult for me to do any internet activities in the classroom," a situation not only voiced and explored by these preservice teachers but by many veteran educators, as well (Swenson et al., 2006).

Finally, 90% of the respondents anticipated they would integrate technology effectively into their practice once they had their own classrooms, but they saw their success hinging on the school's climate, their colleagues' support, and their own abilities to find time to learn the technology before asking their own students to use it. Contrary to what I modeled in methods, teachers-in-training do not want to "experiment fearlessly in the application of technology" (NCATE, 1997) with their own students. They want to be comfortable with the technology with which they intend to practice. They believe urban schools, but not suburban schools, lack access. They recognize that technology supports independent, active learning, but takes a great deal of preparation. When asked if they will use technology as practice in their future classrooms, their responses were mixed (see Table 11).

Table 11
Sample Responses, Commentary Survey 3, Final Spring Semester

Theme	Respondent Commentary
(Dis)Comfort Access	Yes, I plan on being more organized as a full-time teacher as these lessons take more preparation. Although hopeful, the use of technology depends on where I will end up teaching.
Access	It depends on the school and the resources that are available. I would say that teaching outside of [an urban district] would provide me with more opportunity to utilize technology more frequently in my classroom and in my lesson plans.
Digital divide	Right now, I would say no because I will continue teaching in [the urban schools] and from the rumor mill I hear that the situation with technology is not really any better at most [urban] high schools. I wish I could...

Despite most of the respondents being placed in urban schools, where they were using technology as practice, they perceived a digital divide that they had not really experienced. This is not to say there is not a problem with access that affects the economically poorest learners, but the respondents here missed the reality that they were using technology as practice – technologies that were free and shareable, came standard to most hardware purchases, or were widely purchased by school systems – replicating real-world experiences that crossed class lines.

Technology and English Education

Teachers-in-training are experimenting with new media and exploring new literacies as they use technology as practice and gaining experience and confidence over time. They predict that technology will affect their lives, as well as the lives of their students (see Table 12).

Table 12
Commentary Survey 3, Final Spring Semester

Theme	Respondent Commentary
Relevancy	Students know about computers and want to use this technology to assist them. Also, I think the information they learn[ed] through the use of technology is valuable and necessary. This is just how our society works, we cannot afford to leave our students "out of the loop."
Relevancy	Students need to learn how to be current with modern technology in order to prepare themselves for school or the work force. I am sure that I will have an opportunity to use technology to assist me once I get my full time position. It is becoming such a great resource for schools to have. Each school wants to have it and wants their teachers to use it.

In reviewing the respondents' commentary from the first methods class through the conclusion of the final student teaching placement, I learned that their remarks reflect

the route traveled by many teachers as they navigate the first years of teaching – struggling with concepts only to find confidence when they have become comfortable with new practices and acquired new content knowledge. The data from this study map out the journey of these respondents as they translated their learning from theory into practice (see Tables 13 and 14).

Table 13
Comparison Results Over Time: All Surveys, Question 1

Item: Is Technology Used in Practice?	Yes (Used)	No (Did not use)
Survey 1: Besides digital commenting and cyber-conferencing, what other computer assisted methods of English Language Arts instruction did you learn this semester?	90.48%	9.52%
Survey 2: Have you had an opportunity to employ other [than cyber-conferencing] computer assisted instruction (or other forms of technology) during your fieldwork placement?	51.75%	48.25%
Survey 3: Have you had an opportunity to employ computer assisted instruction (or other forms of technology) during your high school student teaching placement?	90.71%	9.29%
Note: For complete item wording, see appendix.		

Table 14
Comparison Results Over Time: Survey 1, Question 2; Surveys 2 & 3, Question 4

Item: Do you value technology's use in your future practice?	Yes (Used)	No (Did not use)
Survey 1: Do you think you will have an opportunity to use technology for assisted instruction purposes in your middle school placement? Why or why not? If so, which of these methods do you plan to try?	36.84%	63.16%
Survey 2: Do you think you will have an opportunity to use technology for assisted instruction purposes once you move into your full-time student teaching placement? If yes, why? If no, why not?	79.85%	20.15%
Survey 3: Do you think you will have an opportunity to use technology for assisted instruction purposes once you get a full-time teaching job? If yes, why? If no, why not?	90.23%	9.77%

In the first methods class, respondents articulated their uncertainty and apprehension with technology as practice. They were uncomfortable with nontraditional teaching practices and classroom structures and they worried over unequal access, but they understood that learning under those models may be relevant to their students. Once in the middle schools, they saw opportunities to experiment and use technology as practice, but still expressed discomfort with nontraditional models, a fear of alienating cooperating teachers who did not value those models, and concern with unequal access to technology. They did express, however, a need to provide relevant educational experiences. Finally, once in their high school placements, they gained confidence in these practices as the result of their real-world classroom applications. Even though they saw a need to remain

relevant, however, they still expressed their concerns with unequal access and discomfort with nontraditional classroom models.

The choices preservice teachers made to incorporate technology into their practice indicated what they valued about teaching, the degree to which they were comfortable with technology, how they conceived and envisioned their content knowledge, and where they found support to engage in experimentation. Their decisions to practice with or without technology resembled the choices made by members of most English departments, with these decisions reflecting specific teacher values about the discipline and how those values are expressed in practice. Technology rejection (Swenson, 2006) or use indicated their comfort with active learning environments. The ease with which they willingly stumbled through learning the technology that would enhance their lessons communicated attitudes about their comfort in the classroom, their philosophies about classroom management, their perception of equal access, and their impressions of technology being relevant to real-world experiences.

If technology is to be used as practice, the data show that experimentation needs to start in the methods classes for it to move into the field experiences and beyond. With varying degrees of comfort, 90% of the respondents in this study employed technology as practice in the first methods class, while 63% of these respondents thought they would not be able to or did not want to use technology as practice at the middle school level. The following semester, 51% of the respondents employed technology as practice during their student teaching at the middle school level, while concurrently taking the second methods class. Eighty percent of these teacher candidates felt they would or could employ technology in their practice at their next placements. Once in the high schools, 91% of the respondents incorporated technology into their practice. Ninety percent of the respondents anticipated finding more opportunities to explore technology use once in their own classrooms, stating that they valued technology as practice.

Clearly, though, teacher candidates did not want to "experiment fearlessly" with technology alongside the students in their field experiences; they wanted to be comfortable with the technologies and new media they employed before incorporating them into their real classroom practices. The question remains: Will these teacher candidates experiment once on the job? This is the next question to be answered.

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Appendix

Survey 1, Initial Spring Semester

Survey 1
1. Besides digital commenting and cyber-conferencing, what other computer assisted methods of English Language Arts instruction did you learn this semester?
2. Do you think you will have an opportunity to use technology for assisted instruction purposes in your middle school placement? Why or why not? If so, which of these methods do you plan to try?

Survey 2, Fall Semester

Survey 2
1. Have you had an opportunity to employ other [than cyber-conferencing] computer assisted instruction (or other forms of technology) during your fieldwork placement? If yes, please describe the assignments or methods you employed (i.e., word processing, cyber-conferencing, digital commentary, Internet research, concrete poetry or collages, online chat or discussion boards, online grade books, blogs, PowerPoint presentations, WebPages, film, hypertext etc.) If no, just respond "no" and see question 2.
2. If you did not have an opportunity to employ computer-assisted instruction (or other forms of technology) during your fieldwork placement, please explain why not (please move to question 3 if you responded "yes" to question 1).
3. Did you ever investigate the use and availability of some type of online course programs like Desire2Learn in your fieldwork placement? If yes, why? If no, why not?
4. Do you think you will have an opportunity to use technology for assisted instruction purposes once you move into your full-time student teaching placement? If yes, why? If no, why not?

Survey 3, Final Spring Semester

Survey 3
1. Have you had an opportunity to employ computer assisted instruction (or other forms of technology) during your high school student teaching placement? If yes, please describe the assignments or methods you employed (i.e., word processing, cyber-conferencing, digital commentary, Internet research, concrete poetry or collages, online chat or discussion boards, online grade books, blogs, PowerPoint presentations, WebPages etc.) If no, just respond "no" and see question 2.
2. If you did not have an opportunity to employ computer assisted instruction (or other forms of technology) during your high school student teaching placement, please explain why not (please move to question 3 if you responded "yes" to question 1).
3. Did you ever investigate the use of Prometheus or Desire2Learn, course-in-a-box products that [the urban school district] uses? If yes, why? If no, why not?
4. Do you think you will have an opportunity to use technology for assisted instruction purposes once you get a full-time teaching job? If yes, why? If no, why not?