

Preparing Teachers to Integrate Technology for Literacy Instruction

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Technology has the potential to assist teachers in meeting the literacy needs of diverse populations of students by contributing to learner-centered teaching approaches and transforming the role of the instructor from a direct deliverer of instruction to a facilitator of learning (Askov & Bixler, 1998). Complex views of literacy are currently emerging as people use new media to make meaning, express themselves, and communicate and work with others. As a result, various forms of information and communication technology (ICT) are redefining the nature of literacy (Leu, Kinzer, Coiro, & Cammack, 2004). The development of these new literacies have presented challenges for teacher educators as they prepare teachers to teach a wide range of literacy skills to culturally, linguistically, and academically diverse students. Both teachers and teacher educators are now expected to integrate new technologies into their curriculum, reflecting National Council for Accreditation for Teacher Education (NCATE) standards developed by the International Society for Technology in Education (ISTE). According to the International Reading Association (2002), students and teachers are now expected to become proficient in new literacies in order to become fully literate in today's world. As new literacies and new technologies are being integrated into classrooms, however, research has revealed that the majority of teachers have not moved beyond mechanistic uses of computers (Bruce & Hogan, 1998). Innovative and transformative uses of technology have become the exception rather than the norm.

This study was designed to increase researchers' and educators' understanding of how K-12 teachers acquire the knowledge and dispositions needed to integrate technology into literacy instruction. The study followed 19 education students throughout a semester long course titled *Literacy and Technology*, which was designed to encourage students to investigate the role of technology in classroom instruction relative to the field of reading. Throughout the semester, I documented student interactions and course responses to determine what understandings and conceptions students held about the role of technology in literacy education. I then documented how these conceptions did or did not change throughout the semester and noted what instigated such change.

Review of the Literature

This study follows the belief that lasting and meaningful changes in teaching practices “must be accompanied by changes in the fairly fundamental beliefs that teachers hold about the nature of learners and the learning process” (Borko & Putnam, 1996, p. 684). The research design is informed by studies that have investigated preservice and practicing teachers' conceptions of teaching and learning (Borko & Putnam, 1996) and by the rapidly expanding interest of educational researchers in narrative as forms of inquiry and pedagogy (Carter & Doyle, 1996). Based on Bruner's (1996) theory of individual's narrative ways of knowing, I designed opportunities for participants to reflect upon their own personal experiences and beliefs. In addition, I encouraged them to share these stories and experiences with others in order to hear alternative perspectives. According to Florio-Ruane (2002), people can begin to “question and complicate their taken-for-granted beliefs and value” by reading, discussing, and learning about others' experiences and from alternative points of view (p. 77).

Research has indicated that by having students read, write, view, and discuss various images of teaching through narratives, teacher educators can help preservice teachers surface and challenge the assumptions of teaching and learning they bring to their classrooms (Clark & Medina, 2000; Olson, 2000). By sharing personal experiences, reading teaching scenarios, and discussing alternative instructional models, participants in this study were introduced to different

representations of using technology to support literacy learning. According to Spiro and his colleagues' (1988) cognitive flexibility theory, instruction needs to provide multiple representations, cover content material in different ways, and help learners avoid oversimplification if people are going to overcome the difficulties of acquiring the cognitive processes necessary for transferring knowledge flexibly in diverse contexts. Using these ideas and the belief that people construct knowledge from experiences, mental structures, and beliefs (Jonassen, 1991) within a community of practice (Lave, 1991), the course *Literacy and Technology* was designed to promote a collaborative learning environment where students decided in groups upon topics and questions related to literacy and technology that could be investigated throughout the semester.

Methods

The study was conducted as an action research project. Being a professor of literacy education who conducts research on literacy and technology, I was in the position to offer a university course that investigated the role of technology in literacy instruction. At the time of the study, I had been teaching literacy methods courses for over five years and had been integrating topics related to technology into the course. However, this study documented my first semester teaching *Literacy and Technology*. I knew that I would learn a tremendous amount of information by teaching the course, and so I decided to document students and my own learning throughout the semester. My intention was to use this information to inform future teaching and research. In the following sections, I describe the course and its participants. I then describe how I collected and analyzed data.

Course Description

In the course *Literacy and Technology*, education students read articles on what some of the most recent research has to say about the integration of technology in k-12 classrooms. They also analyzed and evaluated educational software, Internet sites, and other technologies (i.e., such as Leapster, Language Master, and Alpha Smart) for suitability for literacy instruction. (See Attachment 1 for the course syllabus.) Students were asked to examine and reconsider their knowledge and beliefs about the role of technology in the classroom by keeping an ongoing autobiographical journal. (See Attachment 2 for the autobiographical journal assignment.) In addition, each student participated in a group project where he or she chose to investigate a topic related to literacy learning and technology and presented this information to classmates at the end of the semester. Group projects investigated how teachers can support literacy learning by integrating technology with a) children's literature, b) reading comprehension, c) ESL instruction, and d) content area reading and writing. In addition to working on group projects, students completed an individual project of their choice. The only criteria for the project was that it be related to literacy and technology and receive instructor approval. Some of the individual projects that students selected included creating a WebQuest for classroom instruction, creating a teacher website that provided links to literacy learning activities, and creating an instructional unit that educated children how to conduct searches on the Internet.

In addition to working on projects throughout the semester, students had the opportunity to listen to guest speakers and engage in conversations about technology and literacy learning. Guest speakers included an English high school teacher who discussed her involvement in a district wide 1-to-1 laptop initiative, an experienced special education teacher who discussed how technology supports literacy learning for students with disabilities, a high school teacher

who shared a graduate project that investigated the relationship between instant messaging and writing, and a technology coordinator who shared various websites that supported literacy learning in grades K-12. Classroom conversations occurred in class. They also continued online as students used eCompanion, an online course management system. eCompanion offered password protected areas where students could turn in assignments, engage in online threaded discussions, post and share assignments and articles, and write in an online journal that could be kept private or shared with the instructor. *Literacy and Technology* was an elective course and was not required for completing any of the university's certifications or degrees.

Participants

A diverse group of 19 students enrolled in different education programs at the same university participated in the course, and all students agreed to participate in the study. Four of the 19 participants were male. One was a high school vice principal who was in his second year of an Education Doctorate (EdD) program in Educational Administration. He had previously worked as a high school history teacher. The second student was also working towards an EdD in Educational Administration, and he was in his final semester of coursework. This student was also a public school technology coordinator who had experience teaching elementary school. The third student was a teacher candidate majoring in Special Education who wanted to become a high school teacher. The fourth student was a teacher candidate in the Elementary Education program who had just completed a semester of student teaching.

The 15 female participants included a first grade teacher who had five years teaching experience and was enrolled in an Educational Administration masters program. Another participant was a second grade teacher who had seven years teaching experience. She was enrolled in a Reading Specialist graduate program. A third participant was a second grade teacher who had three years teaching experience. She was enrolled in a Masters of Literacy Education program. Three participants were teacher candidates in their fourth year of a five year elementary teacher certification program. They had not yet completed their semester of student teaching. There were also 8 female teacher candidates who were completing their final semester of coursework. They had completed their student teaching the previous semester. One of them was enrolled in a Special Education program, and the other 7 were enrolled in an Elementary Education program. Finally, there was one participant who was a high school English teacher who was recently accepted into an Education Doctorate program in Literacy Education.

Data Collection

Data collection was continuous and ongoing. At the beginning of the semester, students completed surveys that asked about their teaching experiences, uses of technology, and purposes for taking the course. After each class session, I wrote weekly summaries and reflections about what occurred in class. Over 40 single spaced, typed pages were written during a period of 14 weeks. Surveys, field notes, and summaries were used as data sources. After consent was received by the second week of class, I also began audio-recording each 3 hour class session. In addition, I collected and analyzed participants' written work which consisted of four autobiographical narrative writings for each student. Writings were completed at the end of January, February, March, and May, and they were designed so that students could write about their thoughts as they revisited artifacts and documents (i.e., class notes, posted discussion, readings, etc.) that were created throughout the semester.

In addition to collecting students' autobiographical entries, I saved and analyzed their eCompanion threaded discussions. Students engaged in three discussions throughout the semester and were asked to share their reactions and responses to readings in their textbook *Teaching with the Internet K-12: New literacies for new times* (Leu, Leu, & Coiro, 2004). Responses were based on three different chapters titled, "New Literacies for New Times," "Navigating the Internet with Efficiency and a Critical Eye," and "Effective Instructional Models: Internet workshop, internet project, internet inquiry, and webquests." I saved and coded comments that were shared in students' online, eCompanion journals. Students were encouraged to write weekly reflections on class activities using the eCompanion journal function, but they were not required to do so except for the week that Weblogs, or blogs, were introduced in class. Participants wrote an average of 4 journal entries throughout the semester, and entries were analyzed and coded so that they could be compared to what was being learned from other data sources.

Data Analysis

Data analysis was ongoing and began at the beginning of the semester. As I reflected on class sessions and read participants' written work, I noted common themes, issues, and concerns that arose. I also noted how participants discussed issues related to literacy instruction and technology to get a sense of what role they felt technology should have in the classroom. When I believed that a pattern was beginning to emerge, I revisited and coded data that had been collected to see if they did or did not confirm my initial findings. Coding was done using the qualitative software program NVivo. When patterns of responses appeared to be supported with more than one example and by more than one participant, I noted it and continued to analyze and code for these patterns. Using NVivo, I periodically searched through and reread the coded data to see if new data did or did not confirm the themes that had already been categorized. As this process occurred, new codes were occasionally formed, and the searching and rereading process began once again.

In addition to noting common patterns and themes, I also noted initial hypotheses that did not seem to be confirmed through my analyses. One example occurred when participants were introduced to the concept of blogs. As they created their own blog, participants were asked to think about issues that might arise if they were going to use them in k-12 classrooms. They were asked to consider issues related to sharing information publicly and how this would impact the use of blogs. During class, participants were engaged and talkative. I had a sense that they were enjoying the activity and sharing interesting thoughts. The lively engagement and discussions led me to believe that they were valuing the activity and the concept of blogging. Upon reading their journal entries; however, I noticed that some participants felt that the class session was not very informative and that blogs had no use in education. Reading these entries I was stunned; they depicted great negativity towards blogging that I had not sensed in class. As I continued to collect and analyze future conversations about blogs, I continued to believe that the majority of class did not believe that they had a place in the classroom. To confirm this, I revisited students' journal entries to see exactly who was or was not opposed to blogging. I also listened to the audio-recording that was taken on the day that blogs were introduced in class. As it turned out, more than half of the students made positive comments about blogs and even suggested ways that they could be used in school. As I reanalyzed the data with this in mind, I began to realize that the negativity and resistance I was sensing was not necessarily aimed at blogging itself, but was rather a tension that arose between "new" literacies versus "traditional" literacies. With this

new hypothesis in mind, I then revisited the data once again to confirm or disconfirm my new theory that students were interpreting new literacies and the integration of technology as a threat to more “traditional” or “academic” reading and writing skills. This hypothesis was confirmed and is discussed in more detail below.

Findings

From the first day of class, one of my main goals for the course was to have students ask themselves and critique why technology should be used in the classroom and in what ways teachers can maximize its use. We began the semester by reading *Conditions for Classroom Technology Innovations* by Zhao and his colleagues (2002) and discussing the challenges that teachers encounter when integrating technology into the classroom. We talked about how slowly change occurs in schools and the need for teachers to take time to reflect upon their practice and question their motives for their instructional decisions. Upon being introduced to the ideas of multiple kinds of literacies such as media literacy, informational literacy, and technological literacy, a clear and distinct tension began to emerge that remained with participants, to one degree or another, throughout the entire semester. Participants consistently wanted to know *how* to use technology so that it can best support their instruction and claimed that they did not have sufficient knowledge in this area. They also raised various concerns about not having time for technology and new literacies. Early in the semester, they questioned and were skeptical about how technology could support the more “traditional” or “paper and pencil” literacy skills that they were responsible for teaching in their classrooms. From the first day of class, a number of participants appeared to believe that providing instruction on the literacies that surround the Internet was an “either/or” issue. Either you taught and reinforced traditional literacies skills, or you taught and reinforced new literacy skills. It was difficult for many to see how the two could compliment one another. In the following sections, I describe participants’ concerns in more detail and their resistance towards the concept of “new” literacies. I then describe what impacted these feelings and beliefs as the semester progressed.

Rising Concerns and Resistance

In one of his first autobiographical entries, Dave¹, who was a technology coordinator and EdD student, shared a concern that was expressed by others in the class. He wrote, “I still find it difficult to create lessons and activities that do not just vary the instructional model but use computers to foster higher order thinking.” In their journal entries, two other students also wondered how software and Internet programs could be used to develop critical thinking skills. Dana, a teacher candidate who just completed her semester of student teaching, wrote,

With my focus in the primary grades, I do not know how to effectively and efficiently use my time toward integrating technology into literacy instruction. So many important foundations need to be created and built on in these grades. I am really baffled on how to teach and use technology.

From the first couple weeks of class, after hearing participants’ comments and reading their journal and autobiography entries, it was evident that they struggled to see how technology could be used to support literacy learning. In addition, they expressed their concern for not knowing the “best” ways to integrate technology such as the Internet into literacy instruction.

¹ All names used in this paper are pseudonyms.

Participants' lack of knowledge and experience for integrating technology into the literacy curriculum were reaffirmed when I analyzed the surveys that were completed during the first class session. This was when I learned that over half of the class consisted of teacher candidates with no full time teaching experiences. In addition, the majority of the students had only taken basic computer classes that introduced the mechanics of the computer and not how to integrate technology into classroom instruction. Even though the majority of participants had limited experience integrating technology, they were all eager to expand their knowledge and learn more. This, they claimed, was why they had enrolled in the course.

After initial concerns were shared during the first week of class, participants began to have more focused discussions on the relationship between technology and literacy learning. The focus of the course was not just how to integrate technology into the classroom, it was on how to integrate technology so that it could support K-12 students' literacy skills. Having conversations about literacy learning and technology assisted participants in moving away from complaints about inadequate resources in schools to conversations about critical thinking and developing children's reading and writing skills. As these conversations evolved, participants once again expressed concern about using computers and the Internet during classroom instruction. When sharing these concerns and fears, they mentioned issues related to "basic skills" and "traditional literacies." Comments written by Ann and Katie, two teacher candidates, reflect some of these concerns. For example, one of Ann's autobiographical entries stated,

I have some concerns that come up when I hear about all of these new technological innovations in schools. While now that I know how beneficial different forms of technology can be for different types of students, I worry that the technology is giving them the access to certain information and skills and participation in class but it's also leaving behind the skills that are weak.

Katie expressed a similar concern and wrote in her autobiography,

Although I understand the need for these new techniques that utilize technology, but I am wary of students and teachers disregarding basic skills that these students may need to survive in the "real world". I also have questions that deal with how to use technology in a manner that allows students to really blossom and grow through a variety of techniques, but also making sure that their experiences are meaningful (i.e. not just "playing" a game on the computer).

Rachel, a high school teacher who was working on her doctorate in education, summed up the general attitude of participants when she wrote, "Just because digital technology may be here to stay, I don't think it's time to burn our books quite yet." Through discussions and in their writings, many participants expressed a concern that bringing computers and Internet based activities into the classroom would "pull them away" from time that should be spent developing more traditional, "pencil and paper," reading and writing skills. These issues and concerns seemed to increase when conversations turned to different forms of online communication such as instant messaging and chat rooms.

One of the greatest concerns that participants had regarding online communications, such as online chatting and instant messaging, revolved around issues of safety. All participants showed concern for using such forms of communication when online access could not be

controlled by schools and teachers. In addition to concerns about access, participants also struggled to see an educational value in these forms of communication. They questioned whether chatting online would ultimately lower students writing skills since children's instant message conversations often ignored punctuation and spelling rules. When introduced to Active Worlds, a 3D chat environment, one participant commented in class, "I just don't get this chat thing. There's no learning occurring." Another participant stated that she "just didn't see how chatting online was increasing educational value." As they expanded upon these thoughts, both participants discussed the educational versus recreational aspect of online chatting. They believed that blogs and online chatting had a recreational value for personal use but not an educational one. Another participant expressed concerns over Internet safety and how to support children's literacy skills. She wrote,

Adolescents are now using online chat rooms, instant messaging and email as their primary form of communication. As a soon-to-be-teacher, this worries me for several different reasons. I worry that students' literacy skills are decreasing in quality because they are practicing these skills most frequently in an environment that is not monitored by adults and furthermore, where it is more accepted among their peers to not use the proper spelling, grammar and punctuation of the words they are using. An even larger issue lies in the identities that they are creating and the people with whom they are communicating online.

Other participants echoed these concerns. In addition, some raised questions about the implications that online communications have on teaching and the role that teachers have when deciding whether to use online forms of communication with their students. Most of these conversations about teachers' roles and responsibilities were prompted when a guest speaker shared some of her own struggles about how to respond online when receiving instant messages from students that incorporated "non academic" language. Mark, a teacher candidate enrolled in the Special Education program, wrote the following in his autobiography entry,

One huge challenge is communicating to students when it is appropriate to use instant message language and when to use formal writing language. Today's students are so comfortable with using casual instant message language that it may be a tough task to get students to use formal language when writing an essay or term paper. Also, teachers must ask themselves whether they want to incorporate this informal language into their curriculum. Do teachers want to acknowledge this new language as valid and acceptable for certain assignments? This is something that all teachers must struggle with.

Having a guest speaker who was a classroom teacher share authentic examples of her online instant messaging experiences helped spur conversations about the academic value of bringing different forms of chatting into the classroom. Together the class brainstormed ways that teachers might take advantage of students' high interest in chatting. One participant explained that it might be helpful to have children discuss how the audience and context impact the ways in which people write. Another participant stated that a teacher could ask students to compare different forms of communication such as email, chatting, and letter writing. A third participant, Rachel, the high school English teacher, wondered how she might use chat rooms to

represent a modern day Shakespeare play. She thought about having students use chat rooms to take on the persona of various Elizabethan characters and engaging them in modern-day online chats about the topics and themes that arose from their class readings. Brainstorming and sharing ideas appeared to play a large role in helping participants envision ways to use technology to support literacy learning. Having such conversations, however, was not the only way in which participants came to better understand and come to terms with the role that technology can have in literacy learning.

Overcoming Concerns and Resistance

Giving students hands-on experiences with educational software programs, having guest speakers share real life examples of technology integration, and providing opportunities for students to discuss and share their ideas on course readings and activities played a large role in alleviating students' fears and concerns about how to use technology in ways that support literacy learning. In one example, students had the opportunity to use software programs such as *Where in the World is Carmen SanDiego* and *Inspiration*. They were also introduced to online educational websites such as Star Fall (<http://www.starfall.com/>) and Little Clickers (<http://www.littleclickers.com>). In addition, they were given the Children's Software Evaluation Instrument (<http://www.childrensoftware.com/rating.html>) that is available through the journal *Children's Technology Review* (<http://www.childrensoftware.com/default.html>). Working in small groups of 4 to 5 people, students critiqued the Children's Software Evaluation Instrument from the perspective of a literacy teacher and created a new list of criteria that they felt should be included. They then critiqued software and online programs with literacy instruction in mind and discussed the qualities of good educational software that support literacy learning. Then, over a period of two classes, they elected one program, critiqued it, and shared with the rest of the class a) the literacy areas that were or were not supported by the program, b) the relationship between these literacy skills that were supported by the program and the state's literacy content standards, and c) one or more activities that incorporated the use of the program that involved children in collaborative learning. In another example, students read articles and chapters in their textbook that described how technology can support student learning. Some of these readings provided case scenarios and stories written by real teachers who used technology in their classrooms. By engaging in these activities, critiquing the integration of technology from a literacy instructional perspective, and reading to learn more about the impact of technology on teaching and learning, all of the students began to develop new understandings of how technology can support various literacy skills.

One of the first whole class conversations about the term "new literacies" was prompted by a comment that one student had posted on an eCompanion threaded discussion site. This comment was posted in response to a chapter that was read in the textbook. One teacher candidate, Dave, wrote,

I tend to disagree with this idea of new literacies and believe it is a bit of a misnomer. I feel so many feel confused or anxious when reading about another new set of skills to teach children. These "new literacies" I believe can be better explained to educators as further reinforcing already learned skills and expanding on these skills keeping technology in mind. The skills students must learn while navigating web sites or creating webquests are not new. Students always needed to comprehend what they have read, synthesize the information, and react to the

reading in writing. Now they must be more adapt at doing so. They must look more critically while using the Internet. They must question a little more and sift through a lot more information. Yes they need to refine their literacy skills, but I do not think they need a new set of skills to welcome the changes of technology.

In his autobiography, Dave expanded upon these ideas.

I discovered then that technology and computers use is not at all a separate subject. Moreover, it is not a nuisance and should not be an area that gets put on the back burner because teachers do not have enough time. No, computers and the Internet can optimize time. For instance, the “new literacies” do not have to be taught by themselves and should not be introduced on their own. For instance, providing students with the opportunity to read, listen, and watch the events of the Revolutionary War and detail what they learned in an interactive WebQuest or web design project allows student to reinforce many skills such as the aforementioned new literacies along with important social studies concepts. In addition, students are continually refining their literacy abilities.

Similar ideas were written by another student as she responded to the same textbook chapter that Dave described on the eCompanion threaded discussion board.

... as I have read further, the reading seems to be encouraging the idea that these new literacies are not to be seen as “add ons” to the curriculum, but a means to facilitate content area learning. This has gotten me to feel more at ease and more confident in being able to “fit” technology into a curriculum... Due to what I have experienced in the past with technology’s role in school, I have always been hesitant to believe that it could be successful without it being blatantly obvious that technology was an “add on” or forced to be “integrated.”

The concept that “new” literacies really weren’t “new” was significant and supported participants as they grappled with the issue of using technology to teach literacy skills. Framing “new” literacies as traditional skills being used in new environments and explicitly engaging in conversations about *how* to provide instruction to support literacy development played a large role in making the concept of new literacies more accessible to the class. In addition to forming understandings that were meaningful and related to their individual teaching situations, it was equally important that participants were able to use programs themselves and critique them for the ways in which they did or did not support literacy development. Having the opportunity to hear multiple perspectives from their peers and having access to concrete examples of how technology can be used were powerful. Cathy, a teacher candidate who completed a semester of student teaching, demonstrated this and wrote the following in her final autobiography entry,

At the beginning of this course I questioned how technology could improve performance and develop higher order thinking and problem solving skills. After being exposed to websites and programs such as “Where in the World is Carmen

San Diego,” I have realized that there are credible resources to improve the skills needed to succeed. In such programs students improve skills such as note taking and making inferences and connections to material. Another positive aspect that has come to my attention through this process has been the way technology improves the performance of struggling learners. Students are engaged in collaborative learning groups that not only motivate students, but also motivate students to learn from one another as they build their knowledge and their confidence. Until now I never realized how effective a technological approach to reading or writing could be for struggling learners. At this point this is an area of interest for me and I hope to learn more ways of ensuring such success for all students.

Cathy explained that she had originally thought that implementing technology into the classroom “would be extra weight” on her shoulders, and she would be “trying to do too much too soon.” However, after reflecting upon her various experiences in the course, she wrote that she was now able to “recognize tools that can be used to teach a skill, to reinforce a skill, or to enable a child to utilize and apply a learned skill.” Cathy’s reflections of the course mirrored what many others wrote in their final autobiographical entries and course review feedback forms. One participant explained how reading various research articles and using new software applications helped him realize that his previous use of computers in the classroom was “simply varying the instructional strategy.” He explained how he now recognized that he had been using programs such as PowerPoint for simply presenting information in ways that reflected uses of the traditional chalkboard. A third student emphasized the collaborative nature of the learning that occurred in the course and wrote, “The collaborative nature of our classroom helped me greatly in seeing other ways to use this technology.” Other students described the value in learning about actual classroom examples and mentioned aspects of the course which allowed them to do this, such as through guest speakers, group presentations, and reading about examples of classroom instruction in their textbooks.

In regard to online forms of communication, students discussed and shared ideas about the ways in which blogs could be used to communicate with parents. They were introduced to actual blogs that were being used in classrooms so that they could see the various ways in which individuals shared information without revealing personal information about students and teachers. These examples enabled some of the most critical participants to see real life applications of blogs and to envision the role that blogs could have in classrooms. The concern about public access to information, however, still made a number of participants leery about using blogs and instant messaging with their current or future students. In addition, participants still struggled at the end of the semester to think of ways in which chatting online could support literacy skills in ways that traditional reading, writing, and speaking did not. There were discussions about using chat rooms for role playing and building online 3D communities. One participant pointed out that having students chat online could result in evidence and a print out of conversations that otherwise might not be available when children worked in more traditional group settings. The online chat, in this example, could be used to provide teachers access to students’ comments and thinking. Brainstorming and sharing ideas such as these supported all of the class, including myself, in thinking about the role that

online communications might have in the k-12 classroom setting. In the end, we created various ideas for implementing blogs into classroom instruction. Coming up with actual classroom examples that incorporated the use of Wikis and online chatting, however, was more challenging. By questioning, critiquing, and learning together, participants were able to envision at the end of the semester more concrete examples for using software, educational website, and blogs to support literacy learning. However, many questions still remained in regard to newer technologies.

Conclusion

Findings from this study inform literacy educators, teacher education faculty, and administrators of professional development programs by illustrating some of the tensions and concerns that educators have about using technology to support literacy learning. In addition, findings reveal how one might assist teachers in acquiring the knowledge and beliefs that encourage technology integration. First, it would be helpful for educators and administrators to consider how they are conceptualizing and defining “new literacies” when working with teachers. There is the possibility that teachers will be reluctant to integrate technology into their teaching if they feel technology is adding to the curriculum, skills, and strategies that they are already responsible for teaching. As seen from this study, framing the issue of technology integration around the concept of “new” literacies can become problematic, and it is important that teachers have an understanding of how technology can enhance the literacy skills that are already being supported in classrooms. Second, teachers can benefit from having hands-on exposure to educational software programs and Internet sites that support literacy learning in ways that go beyond traditional “skills and drills.” Collaborating with others, analyzing programs, and critiquing their potential for enhancing literacy learning can assist teachers in seeing how technology can compliment their literacy programs. Third, teachers can benefit from reading about the impact of technology on teaching and learning and reading, seeing, or hearing about successful classroom scenarios of teachers using technology to support students’ literacy development. Finally, we cannot ignore issues related Internet safety. Teachers need to be introduced to programs, software, and instructional techniques that alleviate their concerns about Internet safety and provide students with strategies for becoming “critical readers” of the Internet.

Findings from this study also draw attention to new forms of online communications and programs, such as 3D chat rooms and Wikis, and the role that they might have in literacy education. Current research on literacy education and such technologies are almost nonexistent. Some discussion has begun about using Internet tools such as blogs to support writing instruction; however, most of the work that I have encountered has focused on older learners (i.e., high school and college age students) and not elementary students. In addition to conducting research related to writing, researchers might consider exploring the relationship between different online forms of communication and developing K-12 students’ reading skills. There is the possibility that reading, writing, comparing and critiquing various online blogs will support both reading and writing development. Being an educator who is interested in literacy and technology, I am both excited and fascinated by the areas that need to be explored. In order to maximize the research opportunities that exist, I believe that researchers should work alongside classroom teachers so that they can confront individuals’ questions, tensions, and concerns together.

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Attachment 1: Course Syllabus

Literacy and Technology Spring Semester

Course Overview

Our world is rapidly moving to a digital society where digital forms of expression are increasingly replacing printed forms. The ways in which we communicate and disseminate information are changing. As *new literacies* continue to emerge, it is imperative that we take a closer look at what it means to help people become literate (Reinking, 1998). This course will investigate the computer's role in classroom instruction and learning relative to the field of reading. In this class, we will learn what the latest research has to say about the integration of technology in k-12 classrooms. Using an inquiry-based approach to learning, we will...

- Examine and reconsider our knowledge and beliefs about the role of technology in the classroom.
- Investigate the many ways in which technology and multimedia are being used to support literacy learning in today's classrooms.
- Analyze and evaluate software, educational sites, and "smart toys" for suitability for literacy instruction.
- Examine the instructional decisions that teachers make when integrating technology into literacy instruction and better understand what supports and hinders technology integration.
- Learn about and design developmentally appropriate learning opportunities that apply technology-enhanced instructional strategies to support literacy learning.

Course Requirements

In this course, you will be expected to do the following:

- Complete assigned readings on time, prepare for class discussions, and participate actively in class.
- Write in response to the readings and share your responses, questions, criticism and puzzlements with the rest of us.
- Come every week with a set of questions, comments, and issues that you developed while doing the week's readings; be prepared to draw on these insights selectively in a constructive effort to help shape discussion.
- Conduct a special project that arises from the course content and that meets your own needs and interests.
- Present your work to your peers at the end of the course.

Required Text

Leu, D. J., Leu, D. D., & Coiro, Julie. (2004) *Teaching with the Internet K-12: New Literacies for New Times (4th edition)*. Norwood, MA: Christopher-Gordon Publishers.

Assignments/Grading

Weekly Active Participation - In class & online discussions, document / information sharing, critiques & evaluations of websites, etc. (40%)

Group Project & Presentation (20%)

Individual Project (20%)

Autobiography / Journaling through the learning process (20%)

Course Organization

During class sessions we will work collaboratively in various ways. Class sessions will involve some combination of the following:

- Engaging in discussions (of readings, personal experiences, timely questions, etc.)
- Viewing and discussing websites, software programs, “smart toys,” etc.
- Examining curricular materials
- Analyzing, critiquing, and/or developing literacy activities, lesson plans, and/or units
- Participating in learning activities related to literacy content and pedagogy

The first part of the semester will be dedicated to developing a conceptual framework and philosophy for new literacies. We will begin to identify our attitudes and beliefs about the integration of technology into the classroom. We will also begin to evaluate our own strengths and weaknesses as we set new learning goals. The second part of the semester will be used to delve more deeply into topics that are specifically related to the teaching of English and the Language Arts / Literacy. We will evaluate the role of new literacies in the classroom and begin to identify resources that are available to teachers/students. We will also continue our discussion on ways that technology might support and/or hinder literacy learning. The third part of the semester will be dedicated to learning from one another and further exploring the role of new literacies and technology. We will learn by engaging in both individual and group projects that cover a variety of topics. At the end of the semester, we will reflect upon our learning throughout the weeks and share our personal achievements.

Weekly Active Participation

Your attendance and active participation in class are vital to the course, to your peers, and to your own learning. As our learning depends on each other and on the unique perspectives we each bring to the classroom, all students are expected to attend and participate in each class. Each week you will be responsible for coming prepared to class. For some of these classes, I will ask you to engage in activities that will assist you in brainstorming ideas, facilitating discussions, clarifying your thoughts and beliefs, and sharing ideas with others. I will be updating the eCompanion site each week and will post information for your assignments. Any new information will be posted by Thursday evening at the latest. Please check the site between classes so that you don't miss any important announcements. If you have an urgent message, please contact me by email or telephone.

Group Presentation / Teaching

Each of you will have the opportunity to work collaboratively and become an “expert” on a specific topic related to literacy instruction. I will work with groups as you search for resources, share new knowledge, and plan ways to share this knowledge with your classmates. During the first few weeks of class, we will begin to identify areas that you can explore. Groups will be formed, and we will work together to determine the content and criteria for presentations. Further information about presentations will be provided in class.

Individual Project

During the semester, you will have the unique opportunity to design a project that meets your individual interests and needs. This project provides you with an opportunity to pursue an issue, interest, question, or concern in more depth than is possible for the topics that are covered in the course. During the beginning weeks of the semester, we will explore ideas for topics. You will need to submit a project proposal to me before the middle of the semester. Project criteria and evaluation will be determined on an individual basis. All projects must receive approval from me, and a project description and plan of action should be submitted on or before March 5th. During our last class session, you will have an opportunity to share what you have learned with others in the class.

Autobiography / Journaling through the Learning Process

Zhao and his colleagues (2002) emphasize the importance of having time to reflect about your own beliefs about teaching and technology. For our first assignment, you began an autobiography that touches upon these ideas. Periodically throughout the semester, I’d like you revisit and reflect upon what has been introduced to you through this course. Revisit readings, assignments, notes, classroom discussions, and classroom events. Consider other teaching and learning experiences that you are having outside this course. Reflect upon your attitudes, knowledge, and beliefs. Consider what is prompting them to evolve and/or change and write about these experiences. The number and length of these entries will be discussed and determined in class.

A Note on Turning in Assigned Work

Assignments are due as indicated on the course schedule or as announced on the eCompanion site. You are responsible for knowing what the due dates are. Unless arrangements are made in advance of the due date, late assignments will be graded as such.

A Note on Confidentiality

When discussing classroom situations in class, do so carefully. Mask the name of a student on any written or visual work shared in class or used in an assignment.

Policy on Academic Integrity:

You can find the Policy on Academic Integrity for Undergraduate and Graduate Students at the university website.

TENTATIVE SCHEDULE

	Topics & Guiding Questions	Readings	Assignments
Week 1	<p>New Literacies for a New Era: Course Introduction</p> <p><i>What do we know about “new literacies” and technology integration? What do we want to learn about the integration of technology into the literacy classroom?</i></p>	<p>ISTE Standards http://www.iste.org/index.cfm</p> <p>NJ Standards http://www.state.nj.us/njded/cccs/s8_tech.htm</p> <p>NJAET http://www.njaet.org/</p> <p>CARET Q&A: http://caret.iste.org/index.cfm?fuseaction=topics</p>	
Week 2	<p>Using Technology to Transform Instruction</p> <p><i>What is the impact of technology on teaching and learning? What is its role in the literacy classroom? What do researchers know about integrating technology into the classroom? How can literacy help us extend and enhance what we are already doing?</i></p>	Assigned Readings	Autobiography
Week 3	<p>New Literacies for New Times</p> <p><i>How do we define new literacies? What hinders and supports technology integration?</i></p>	Leu et al., Chapter 1	Chapter 1 response
Week 4	<p>Navigating the Internet with Efficiency and a Critical Eye</p> <p><i>What are some of the skills that teachers and students need for integrating technology into the literacy curriculum?</i></p>	Leu et al., Chapter 2	Try a new way to navigate! Come prepared to talk about your experience.
Week 5	<p>Effective Instructional Models: Internet Workshop, Internet Project, Internet Inquiry, and WebQuest</p> <p><i>What are some effective instructional models for integrating technology into the literacy classroom? What are the strengths and weaknesses of each model?</i></p>	Leu et al., Chapter 3	Chapter 3 response
Week 6	<p>Communicating on the Internet</p> <p><i>What are the various ways in which teachers and students can communicate through the Internet? How can communicating on the Internet be used to support literacy teaching and learning?</i></p>	Leu et al., Chapter 4	Become a participant or “lurker” - Share what you’ve learned

Week 7	<p>English and the Language Arts: Opening new doors to literature and literacy</p> <p><i>How can technology and the Internet support literacy learning? What resources exist for educators? What have literacy teachers accomplished by integrating technology into their classrooms?</i></p>	Leu et al., Chapter 5	I'd like to have your individual project description and plan of action submitted by the end of this week.
Week 8	<p>Literacy, Technology, & Struggling Students: A look at Universal Design</p> <p><i>Next week we will have a GUEST SPEAKER. She will talk about technology, special education, and the "Universal Design" curriculum.</i></p>	Assigned Readings: eCompanion Article on Universal Design for Learning	Come prepared with questions for our guest speaker.
Week 10	<p>Literacy, Technology, & Struggling Students: A look at Universal Design</p> <p>Developing a Home Page for your Classroom</p> <p><i>How can teachers use a home page to support teaching and learning? What resources are available for designing and publishing a home page?</i></p>	<p>Guest Speaker - Universal Design for Learning</p> <p>Leu et al., Chapter 12</p>	Come prepared with questions for our guest speaker
Week 11	Implementing Change in Schools	<p>Guest Speaker - High School Laptop Initiative</p> <p>Online Posted Articles</p>	Come prepared with questions for our guest speaker. In addition, be ready to discuss the readings.
Week 12	<p>Instant Message Conversations & Writing</p> <p>The National Educational Technology Plan</p>	<p>Guest Speaker - Instant Messaging & Writing</p> <p>Individual Project Presentation</p> <p>Online Posted Articles</p>	By Friday, April 1 Autobiography #3
Week 13	Technology in the Language Arts Classroom	<p>Guest Speaker - Internet Websites for K-12 Classrooms</p> <p>2 self-selected readings</p>	Online Reading Response / Article Summary
Week 14	<p>Supporting Content Reading & Writing Through Technology</p> <p>Technology & Inclusion (ESL / bilingual)</p>	Group Presentations - Reading Assignment To Be Announced	
Week 15	<p>Technology & Comprehension</p> <p>Children's Literature, Technology, and Literacy Learning</p>	Group Presentations - Reading Assignment To Be Announced	
Week 16	EXAM WEEK	EXAM WEEK	<p>Autobiography #4</p> <p>Before May 9 - Individual Projects Due</p>

Attachment 2: Autobiography Project Description

Autobiography / Journaling through the Learning Process

Periodically throughout the semester, I'd like you to take time to pause and reflect upon your learning. Zhao and his colleagues (2002) wrote about the need for individuals to reflect about their beliefs on teaching and technology. In an effort to help you document your evolving knowledge, skills, and beliefs/dispositions related to the content of this course, I'd like you to write about your thoughts as you revisit various artifacts and documents (i.e., class notes, posted discussions, readings) that are collected and/or created throughout the semester. I find it extremely helpful to jot down notes as I encounter my "AHA" moments. I would encourage you to do the same and possibly use the eCompanion journal to record these moments. You might find that such moments occur both in and out of class.

The following describes the minimum that are needed to receive full credit for the "Autobiography / Journaling through the Learning Process" component of your grade. **Before writing each entry, be sure to take the time to revisit what you have been learning about literacy and technology. This might include revisiting such things as class notes, class readings, and posted discussions.** Please submit each entry as it is completed. The suggested length for journal entries is approximate. If you submit more entries than are required, some of your entries might be shorter than what is described below.

- 1) Entry #1 - Your first entry should be the autobiographical narrative that was assigned for the second week of class.
- 2) Entry #2 - Due by the end of February.
- 3) Entry #3 - Due by the end of March.
- 4) Entry #4 - Due on May 2nd.

Suggested Length: If you only write one entry per month, the suggested length for each entry is approximately 800 words. The final entry might be longer.

Entries should be thoughtful and demonstrate your ability to ask critical questions, consider alternative viewpoints, and recognize the possibility of error, even in beliefs that might be dearest to you. For the final entry that is due on May 2, please be sure to discuss and provide evidence of your growth in **knowledge, skills, and dispositions** related to the literacy teaching and/or learning and technology integration. Please include evidence to support this growth. (Ex. When describing a change in dispositions, you might compare and make reference to comments that are posted on the eCompanion site. You might also describe an incident that occurred in a k-12 classroom and relate it to something that was discussed in class.)

* If you are currently teaching, you might want to further document and investigate how this course impacts your ability to integrate technology into the classroom. In order to do this, you might want to consider doing a self-study / classroom investigation for your individual project.