JOURNAL OF SCHOOL CONNECTIONS

VOLUME 4, NUMBER 1 / FALL 2012

Journal of School Connections

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Journal of School Connections

The mission of *JSC* is to disseminate original, empirical research and theoretical perspectives devoted to enhancing student learning and teaching practices across the pre-kindergarten-professional contiuum. It is committed to bridging theory and practice, and making research findings accessible to teachers, researchers, administrators, and teacher educators.

JSC is an interdisciplinary, peer-reviewed publication founded by the College of Education at Kean University. Published annually, JSC disseminates empirical quantitative and qualitative studies that explicitly present a clear introduction, literature review, research design (research question(s) and methodology), results/findings, discussion, limitations, and educational implications.

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Length of manuscript. A manuscript should be 25-35 pages (including references, tables, and figures). All manuscripts must be page numbered and double-spaced in 12- point font with 1-inch margins all around.

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Journal of School Connections

Volume 4 Number 1 Fall 2012

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Editors' Introduction

Welcome to the fourth volume of *Journal of School Connections (JSC)!* As this is our first themed issue, it is a special pleasure to share this publication with you. With the support of our Editorial Review Board and Guest Reviewers, we have selected four papers that we believe make valuable contributions regarding how technology can positively influence teaching and learning.

The four presented studies employ qualitative methods. Ikpeze studies two disengaged, 5th grade students and the effects on their reading and writing when their classroom teacher moves from a traditional instructional approach to one that integrates digital technologies. Colwell examines the impact of a collaborative blog project on pre-service teachers' understanding of disciplinary literacy strategies in Social Studies. Grisham and Wolsey investigate the process and consequences of creating audio podcasts with secondary teacher candidates, and Taylor researches the use of a class wiki to motivate six, reluctant third grade writers.

Taken together, these articles underscore the benefits that can accompany technology integration in educational settings. Ikpeze reports notable improvements in disengaged students' productivity and attitudes towards learning, following their teacher's instructional changes. Colwell, Grisham and Wolsey share positive outcomes for pre-service teachers associated with the use of blogs and audio podcasts, and Taylor indicates strong improvements in young children's writing, and motivation to write, that accompany the use of a class wiki.

We invite you to read the described papers and, hopefully, experiment with technology approaches in your instruction. Furthermore, we encourage comments on the articles, or comments on your instructional changes that result from reading these articles, in letters to the Editors. Finally, we hope you will submit your own manuscripts for publication consideration in JSC and/or join our Editorial Review Board. Together, we are a community of educators and learners striving to make as many meaningful connections as possible with the goal of improving our schools and education for all.

DIANE H. TRACEY, Ed.D.
& SUSAN R. POLIRSTOK, Ed.D.,
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Journal of School Connections
Fall 2012, Vol. 4, No. 1, pp. 3-24

New Kids on the Block: Understanding and Engaging Elementary Readers and Writers in New Times

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This collaborative study examined literacy instruction in a fifth grade classroom with particular reference to two case study students and the role of pedagogy in bridging the divide in their literacy practices. Grounded in the multiliteracies framework and perspectives consistent with third space theory, data were collected using a multi-site approach. Data were analyzed using the thematic analysis and constant comparison approaches. Findings suggest that the two children disengaged from most of school tasks because of the traditional approach to instruction, lack of recognition of their learning styles and interests, as well as the absence of digital literacies. However, they became engaged with school as the teacher implemented a more transformative approach to learning which included the integration of digital technologies and the creation of productive spaces for learning. Implications for literacy teaching and learning were discussed.

We are in the era of rapidly changing literacies, and learners need to acquire multiple forms of knowledge, skills and values to meet the demands of the 21st century. While traditional literacy instruction is still vital for our students, it is insufficient in terms of preparing them for the multiple literacy demands of today's society (Gainer & Lapp, 2010; Ikpeze, 2009; Millard, 2006). Gainer and Lapp argue that a "remix" of effective instruction with the integration of new literacies and technologies can facilitate engagement and motivation as well as powerful reading and writing practice (Davies, 2006; Larson, 2009; Wigfield, Guthrie, Tonks, & Perencevich, 2004). New literacies can also serve as catalysts

for transforming instruction and constructing learners' multiple realities (Reinking, Mackenna, Labbo, & Kieffer, 1998).

More than ever before, today's classrooms should help learners gain skills suitable for success, but success defined in multiple ways (Gee, 2004, 2006). However, educational institutions have continuously fallen short of capitalizing on the rich contemporary and digital culture in which children live outside of school (Gee, 2006). Consequently, the identities that many children bring to school go unrecognized or misinterpreted (Harry & Klinger, 2005). Parsons (2008) argues that teachers can design instruction that both prepares students for high stakes testing as well as empowers and motivates them to take charge of their learning. To achieve this, educators need a better understanding of today's learners and their literacy practices. They need to rethink epistemological assumptions that underpin most classrooms, examine possible pedagogical approaches that will transform teaching and learning, and create new spaces for learners in the classroom and beyond. This article focuses on two participants and explores two questions: Why were two fifth grade students disengaged from classroom literacy activities? What pedagogical approaches and activities, if any, resonated with these students and motivated them to fully engage with classroom learning?

Theoretical Framework

Multiliteracies

Multiliteracies recognize that people read and write in many and varied ways using both conventional, new literacies and popular culture texts (Alvermann & Hong Xu, 2003; New London Group, 1996; Sheridan-Thomas, 2007). The New London Group (NLG) reports that "technologies of meaning are changing so rapidly, there cannot be one set of standards or skills that constitute the ends of literacy learning, however taught" (p. 64). This theoretical perspective posits that we not only value multiple forms and uses of literacies but also view literacy as situated in time, place and culture, while recognizing that pedagogy can be used to build bridges between different forms of literacy practices. Millard (2004) found that working with multimodal texts helped children to link aspects of their "chosen worlds with their symbolic identities to inform and motivate the development of focused literacy" (p.154).

Luke and Carrington (2002) suggest that educators need to fuse the local literacy practices with which students engage, and the global literacies they bring through the Internet, into a new 'glocalized' literacy

which can be used within the classroom. Lankshear and Knobel (2004) warned that if educators fail to align learners' interests, affinities and prior knowledge to classroom teaching and learning, these students may likely reject formal education for all that it is worth.

Creating a Third Space

Fusing local and global literacies in contemporary education requires the creation of a third space. Third space (Gutierrez, 2008; Gutierrez & Larson, 2007; Moje et al., 2004; Rowe & Leander, 2005) highlights the need for teachers and other educators to create conducive contexts for learning. Gutierrez and Larson (2007) described third space as productive learning spaces which can be created and facilitated by students and teachers in a variety of ways. Third space supports both vertical and horizontal forms of teaching (Gutierrez, 2008), which allows us to view development within and across an individual's literacy practices. Moje et al. (2004) argue that third space provides a space where students' "funds of knowledge" are valued in hybrid spaces, where classroom learning is informed by both home and community based knowledge. They conceptualized third space in three ways. The first is a way to build bridges from knowledge and discourses not often privileged in academic settings, to that of conventional academic knowledge and discourses. In this respect, third space creates spaces of representation and transformation where students can be supported to move their literacy practices into a schooled domain of knowledge. The second view of third space conceives it as a navigational space that enables border crossing that will potentially facilitate success in different discourse communities. Finally, third space could be seen as a social, discursive or cultural space (Gutierrez & Larson, 2007), in which identities are created and transformed and where interactions create new sociocultural contexts that challenge what counts as knowledge and its ways of representation.

Third space, therefore, permits the resistance to the dominant order and the one that "comes into being because of the subordinate and marginalized position of participants" (Rowe & Leander, 2005, p.318). An analysis of third space also helps us to interpret and account for events that produce something new and unanticipated. The concept of third space is important in analyzing the literacy activities children engage with both in and out-of-school because it helps to account for not only the physical space of the classroom, but also virtual spaces of the Internet and hybrid spaces that are neither school nor homes, where learning can take place.

Methods

School Context

Kent Elementary (all names are pseudonyms), a K-8 magnet school, was the primary research site. It is nestled within a mid-sized school district with approximately 70 schools, 3,017 teachers, and approximately 34, 000 students. Kent had a diverse student population of 713. Forty-seven percent of the student populations were African Americans, 44% European Americans, 4% Hispanics and 4% Others. The students' socioeconomic status was equally diverse. There were students from low, fixed, middle and high-income families. Fifty percent of the students were on free or reduced cost meals. Students' access to technologically mediated learning depended to a large extent on which teacher they had and the teacher's knowledge, proficiency and comfort level with the use of technology.

In the fifth grade classroom where this study was carried out, there were 16 African Americans, 9 Caucasians, and 1 Asian American, for a total of twenty-six students (13 boys and 13 girls). The teacher, Mr. Pedro was a White middle class teacher in his mid-forties, with more than ten years teaching experience. His undergraduate major was elementary education with an emphasis on science education. He was certified in K-6 special education and 7-12 geosciences. Mr. Pedro retreated from teaching for some time to work in the private sector but later returned to teaching. Upon his return, he was first assigned to sixth grade as a special science teacher for two years before he became a fifth grade teacher in an integrated classroom. Mr. Pedro was more comfortable with teaching science and math than language arts and social studies.

Mr. Pedro was recommended to me by his principal because of the large number of computers in his classroom. In addition, Mr. Pedro had great technical skills. He could fix computers or assemble them. However, during our conversations, he admitted that the computers were hardly used for academic purposes; but indicated interest in learning how new technologies can facilitate teaching and learning. In addition, his increased frustration with his students' "restlessness" and lack of motivation to read and write created a sense of urgency and determination to transform his classroom instruction. Mr. Pedro and I had different but complementary interests. He wanted to improve his students' engagement and I wanted to see the impact of some learning activities on students' engagement. Mr. Pedro and I initially agreed to collaborate to integrate new literacies and technologies. Because he was very open and willing to try out any

ideas, the collaboration was expanded to include all aspects of classroom literacy instruction. The new literacies as used in this paper refer to digital and online literacies or skills necessary to utilize the information and communications technologies (ITCs) that abound today. The new literacies include the ability to effectively use Internet resources to read, write and research online as well as collaborate with others using such tools as blogs, Wikis, websites, and face book among others.

Researcher's Role

My role during this research was fluid, ranging from an observer to a participant observer (Spradley, 1980). While we collaborated and planned the activities together, Mr. Pedro was completely responsible for teaching, classroom management, and grading of the students' papers. Occasionally, Mr. Pedro requested my feedback or assistance to facilitate classroom activities or quick intervention when he felt overwhelmed while attending to students. For example, I helped to facilitate small group activities, literature circle discussions and online discussions which we initiated as part of the research. In all interactions with students, I was usually brief and tried not to assume an authoritarian researcher stance or role of the teacher.

Participants

The participants for this study were two fifth grade students, Jack and Sasha, who were selected through purposeful sampling from a group of six students. My interest in Jack and Sasha stemmed from the teacher's comment about the two. Mr. Pedro had described Jack and Sasha as students who ought to be high achievers but who were performing below expectation because they appeared disinterested in school. On closer interaction, I discovered that Jack and Sasha had very similar but unique literacy practices.

Jack was a ten year old European American. His mother was a special education teacher and his father was a private businessman who worked as a movie producer. Influenced by his father's profession, Jack had been involved in acting in one or two commercials and hoped to be a screenplay writer in the future. Jack's hobbies included Internet based reading and writing on a variety of subjects.

Sasha was an eleven-year old African American from a middle class family of four. Sasha described herself as computer savvy, social and outgoing. She wanted to be a journalist when she grew up and as she put it, "I like to write and travel and these go well with journalism."

Instructional Context

Before collaborating with Mr. Pedro, I observed his classroom for four weeks. During this period, I familiarized myself with the classroom and students, while we worked out details of our collaboration. While Mr. Pedro worked extremely hard as a teacher, he was nevertheless very traditional in his approach to instruction. For example, literature instruction consisted of having students read selected chapters of a trade book after which they took a quiz on those chapters. Mr. Pedro said he resorted to that method because most of his students did not read the assigned books. Collaborative learning was rarely utilized. Most writing activities were done using writing prompts. In many cases, the students had difficulty making meaningful connections with the prompts. In addition, while Mr. Pedro was highly interested in integrating digital literacies and had even attended some workshops, he was yet to integrate them in his classroom.

During the period of our collaboration, we thought about learning activities that would motivate and engage students as well as facilitate writing. However, the final selection was based on the perceived needs of the students, time availability and curricula congruency. The activities we designed closely mirrored the ACCESS Framework (Parsons, 2008). ACCESS stands for tasks that are authentic, collaborative, challenging, culminate with an end product, allow self-direction by giving students choices and finally lead to sustained learning across time. For example, we introduced the writing of a class magazine, which utilized both literature circle and online discussions, and made reflective writing a required part of every major assignment. In addition, we introduced a couple of short and long term web-based inquiry projects on social studies and literature, in addition to the science fair project, which was a required part of the curriculum. The new projects were used to promote Internet research, collaboration, authentic exploration, and reflective reading and writing. They also served as a springboard for integrated and multifaceted activities. Critical thinking was facilitated through higher order questions, creative activities, reflection and the analysis of digital videos recorded from class activities.

Group collaboration and independent learning were promoted through group and individual projects. Students were allowed more choice in their learning and more flexibility in the choice of projects. For example, while teaching about US neighbors (Canada), students were given sixteen activities from which to choose and students could choose any number of activities that gave them a cumulative point of 40. For example, in one activity, students were asked to draw a map of Canada. This activity was valued at only two points, while five points were earmarked for an activity

that required students to read and summarize a local newspaper article on Canada. Students could also earn 10 points if they interviewed someone who lived in Canada and analyzed the interview. The sixteenth activity was an open ended project called "design your own Canada project" (with the permission of the teacher), assuming the student did not find any of the other 15 activities motivating or interesting. These choices enabled students to work within their comfort zones.

Finally, classroom computers were utilized for meaningful and purposeful activities such as students' writing, inquiry projects and web exploration. Altogether, our aim was to better connect to students' interest and funds of knowledge, integrate digital literacies, and move from traditional to more transformational pedagogy.

Data Collection Procedure

Data were collected from multiple sites (home and school), using a case study method (Stake, 2003). The two participants were not only observed in the classroom, the researcher also visited their homes and interviewed their parents and observed some of their home activities. Classroom data collection lasted for six hours a day from 8:30 am in the morning to 2:30p.m in the afternoon for six months. Data collection from each participant's home was done mainly in the evenings and by appointment only. The primary data sources included interviews, written field notes of observational data, video and audio tapes of classroom interactions, artifacts including writing samples, transcripts from online discussions, project papers, attitudinal inventories and the researcher's reflective journal. I conducted formal and informal interviews with each participant and the teacher before and during our collaboration.

The students' interview questions consisted of semi-structured and open-ended questions that sought information concerning their backgrounds, interests, attitudes toward school learning, and what they envisioned as classroom activities that would motivate them to learn. Questions were also directed toward their assessments of the new learning activities introduced in their classrooms. The teacher was asked about his teaching philosophy, teaching challenges and ways he intended to improve his pedagogy. At the end of each day, Mr. Pedro and I reflected on the teaching and students' learning. These discussions and my observations in the classroom provided information for my reflective journal.

Data Analysis

Data analysis was ongoing, recursive, occurred in phases, and was aimed at uncovering patterns of actions, events, practices and behavior

from participants (Bodgan & Biklen, 1998). A combination of data analysis methods was employed. These included coding strategies (Strauss & Corbin, 1990), thematic analysis (Elly, Anzul, Friedman, Garner, & Steinmetz, 1991) and within and cross case analysis (Merriam, 1998).

Thematic analysis began with open coding, which involves breaking down, examining and categorizing data by topic. Steps in the thematic analysis include establishing thinking units, categories, themes and integrating findings. First, I created two thinking units (Elly et al., 1991), "pre collaboration" and "collaboration stages" which were used as broadly framed sorting files. For the pre-collaboration, I analyzed the interviews, observation data and field notes taken about the two students' attitudes and dispositions to learning before my collaboration with the teacher. The same analysis procedure was applied to the collaboration stage. Categories were then generated under each classification topic. Some questions for the participants aligned with some of these categories. For example, before collaborating with the teacher, the two students were asked to describe their learning experiences and why they were 'uninterested' in classroom activities. They were also asked to choose the kinds of learning activities in which they would like to participate, and the changes they would like to see in their classrooms. The same interview process was repeated with the students during my collaboration with the teacher, but the questions were geared toward their assessment of the learning activities introduced in their classroom.

Using analytic induction, I coded Jack and Sasha's perceptions about school learning activities before and after the teacher integrated more progressive learning approaches. Key words such as "boring, fun, disliked, struggled, liked, enjoyed, high interest, no interest, low interest," among others, were linked to particular learning activities and context. I moved from a broader contextualized description of the participants' literacy practices in different spaces to a more focused microanalysis of their activities in these places. Within each category, I searched for themes by reviewing the data for statements or ideas that were particularly revealing, expressive or outstanding.

Finally, findings for each participant were integrated and these were again compared for commonalities, patterns, differences or unique happenings. Throughout this recursive process, I purposely searched for negative or discrepant cases. To promote validity, videotapes were used to verify and check the accuracy of observational field notes while discrepant information was presented to the participants for verification. Triangulation of data sources, refining working themes and member checks were additional standards used to enhance trustworthiness. I periodically

checked some of my interpretations of data with the participants to ensure that their views were represented.

Results

In this section, I present the themes and patterns related to Jack and Sasha's literacy practices before and after the teacher infused more responsive activities. Data analysis produced two major themes: (a) disengagement as a form of protest, and (b) transformational pedagogy as a catalyst for learning and engagement. The first theme related to Jack and Sasha's literacy practices before the teacher's implementation of a more responsive pedagogy. The second theme highlights the impact of the teacher's pedagogy on Jack and Sasha's literacy practices, suggesting that a more flexible student-centered approach that fuses aspects of students' interests, their emerging identities, and the demands of the official curriculum, resulted in learning engagement.

Disengagement as Quiet Protest

Jack. In school, Jack was quiet and withdrawn and hardly talked in class. He was both the youngest and smallest child in his class. Jack indicated that he liked to work .independently, but also likes to work with others when it is something that interests him. When I observed Jack, I noticed that he lacked enthusiasm most of the time. Jack's teacher had described his performance in class as a mismatch to his intellectual ability. Jack's lack of interest in school could be seen from his remark during an interview when he was asked about his future ambition: "Am not sure I will make it to college because school is boring!" According to Jack, sitting and listening to the teacher all day long was not his style of learning. He would have preferred more "fun" activities and more access to computers and the Internet at school because they're "a lot more free and independent ways of learning." In contrast, Jack was engaged at home with a variety of self-selected writing projects on and offline, research activities and educational video games. He also posted his poems online, listened to his favorite authors and solicited feedback on his questions about various issues. Jack was bored and uninterested in most classroom activities because it appeared that his multi-literacy practices, dispositions for research, writing and self-directed learning were unnoticed (Harry & Klinger, 2005). Jack indicated that he chose not to engage in most class activities because they were boring and he just did not want to try unless it was on what he wanted to work. During a conversation with Jack's parents concerning his attitude toward school, his father expressed disappointment with the school system, but tried to rationalize his son's dilemma: "Jack is

like me. I never did well in traditional school."

Jack's case challenges us to rethink the concept of "traditional" school in the age of new media. Traditional pedagogies, which explicitly outline which knowledge children should acquire and how, perpetuate the deep grammar of schooling, and in many cases, offer learning experiences that are irrelevant to children's lived realities (Gee, 2004, 2006; Lankshear & Knobel, 2006; Marsh, 2006).

Another major reason for Jack's disengagement was because he conceived writing and literacies as computer mediated and authentic activities. In school, Jack's purposes for writing were limited. One reason was because he had to hand-write everything, while at home he had access to a computer. Another reason was that there were not many opportunities for authentic reading and writing in the classroom. Jack was motivated to write when he perceived writing as an authentic activity, directed to real people, and for real purpose. Jack wrote readers theater scripts for his after-school program, asked questions and listened to his favorite authors online, and occasionally posted his poems online. He also participated in the AoM (video game) forum discussion because it involved interaction with real people and he could get feedback from them concerning the technical glitches he experienced with the video game. Jack was working on a book manuscript and a collection of poems for online publication. Computer access was his major motivation for most of his writing because he could format, edit and revise the manuscript without "messing papers up and with less frustration." Conversely, much of what he wrote in school was done only with paper and pencil, and his audience was his teacher. These activities were boring and uninspiring. They were more laborious and not authentic.

Sasha.

Like Jack, Sasha also performed below her intellectual level in school. Her writing notebook had pieces that were never developed nor finished. Many of her take-home assignments were not done. Most of her private time was spent on online activities. When I observed her in class, I noticed that what interested her most was chatting with her group of friends and discussing some magazine articles that she wrote. Sasha usually brought to class the magazine she published privately on girls' issues which she shared with her friends. School, for Sasha, was all about friendship and social interaction. No wonder that the reasons why she went to school, as listed in her blog were to make her mother happy and to meet with her friends. When I asked her to explain why school learning was not part of the reason she went to school, she told me that she did not learn much from school and was bored most of the time. "My friends make it worthwhile," Sasha retorted. Sasha reacted very negatively to the fact that computers in their classroom were

for a select few--- for those with whom the teacher was satisfied. Her reluctance with writing and other activities was a deliberate protest against the teacher for making them handwrite most of their class work when there were many computers in the classroom, and for using computer time as a reward and punishment system. Consistent with Davies and Merchant (2009), Sasha's interests were more on Web 2.0 tools such as online participation, social networking and collaboration. Blogging, for example, was her favorite pastime. Interestingly, while Sasha was actively involved in several writing projects at home, she was uninterested in school literacy activities, especially writing. As far as Jack and Sasha were concerned, writing and literacies were motivating only when they were computer mediated activities, and not with paper and pencil.

Like Jack, Sasha was a prolific writer and most of the writings were computer-mediated and done outside of school. As indicated earlier, Sasha was involved in a myriad of writing projects. She published a biweekly magazine, and was working on a collection of short stories. She also wrote poems, book reviews and kept daily record of important events in her website and blog. Sasha was reluctant to write in her class because to her "it was tedious and time consuming" to write on paper and then later revise and rewrite. Besides, the teacher was the only audience for class writing and Sasha was used to writing online for wider audience feedback. For Sasha, digital compositions were not just necessary; they were a way of life that the classroom was disrupting.

Transformational Pedagogy as a Catalyst for Learning and Engagement

Jack.

Transforming classroom instruction through a flexible and constructive approach to learning and assessment, as well as attention to learners' interests did impact Jack and Sasha's literacy practices. Literature discussion groups, inquiry-based learning, collaborative and individualized activities, reflective writing and the integration of new literacies and technologies, not only changed classroom dynamics but also created opportunities for Jack and Sasha to engage more with school. When I asked Jack to specifically identify the activities he liked most, he mentioned independent projects, webQuests, video analysis and online discussion. Other activities that impacted Jack and Sasha's engagement with school are described in detail below.

Project-based learning had an impact on Jack's engagement with school. One of the changes that Mr. Pedro implemented was to allow students more choices to explore their interests and "design their own

projects," if they wished, with his permission, if they did not like the class assigned projects. Jack had a passion for myths and had been researching and collecting information on mythology including ancient Greek, Egyptian and Roman mythology. When the opportunity to design a project of his choice was presented, he decided to compare the original myths (information he had been researching on mythology from books, Internet and other sources) with the *Age of Mythology* (AoM), a video game. Jack compared the two genres to determine how the game reflected or did not reflect the real mythology. After extensive research, he synthesized his findings in a five-page report and wrote a conclusion as follows:

> I think the people behind the *Age of Mythology* (AoM) (producers), distorted the original myths because they wanted to make a fun, good selling game and make a profit out of it. The game was most likely made for purposes of entertainment and not to educate players about mythology. Most of the people who have come across this game didn't know enough about mythology to criticize and correct certain aspects of mythology that the creators altered. However, I personally enjoyed the game a great deal and was ecstatic when I finally won the AoM campaign.

Jack's analysis of AoM, that it is a "distortion" of the original myths, could be seen as a challenge of the cultural values that position children as consumers and as objects of consumption. By allowing Jack to analyze a video game as part of his academic work, Mr. Pedro encouraged the integration of a popular culture text as part of Jack's repertoire of learning. This corroborates the call by literacy scholars that popular culture texts should not be viewed as diversionary or something to be shunned; instead, students should be encouraged to appreciate and critique such texts (Alvermann & Hong Xu, 2003; Gee, 2006). Besides, Jack's project may have been both empowering and motivating because it was authentic, challenging, allowed for self-direction, and culminated in an end product that met the assignment's requirement and resulted in an earned grade (Parson, 2008).

While Jack undoubtedly thrived well as an independent, self-directed learner, there were other aspects of his identity that were unrecognized or even misinterpreted in the classroom until he had an opportunity to be involved in some learner-centered activities. For example, during the literature discussion of two books: *Door in the Wall* by Marguerite De Angeli and *Because of Winn-Dixie* by Kate DiCamillo, Jack actively contributed to the discussions and was highly engaged. Although he described himself as a listener rather than a talker, he nevertheless

described the literature circle discussion as insightful, fun, and interesting because he could listen to other students' ideas and contribute his ideas.

The video analysis reflection was another activity with which Jack was engaged. This activity required students to watch the video of their class debate, as well as their group preparation for the debate, and to write an analysis of their group's performance. Below is an excerpt from Jack's paper:

> When I watched the video, I noticed that our group did not function well…I mean, we were not well prepared for the debate. Second, some boys in my group were difficult to work with. Another reason for the poor performance of our group was because we were mainly boys and none of us was a good talker. One of our speakers stammered while he spoke, while the other missed the key points. In the future, I would like to work with a group with a mix of eloquent students, and I will like the group to spend more time to prepare for the presentations.

Reflection is an important aspect of students' learning because it provides them with opportunities to evaluate their own learning and helps the teacher to understand the students' perspectives.

In addition to the activities mentioned above, online discussion at http://www.nicenet.org, was one of the most motivating learning activities that gave Jack access to powerful and authentic literacy experiences. Online discussion forums were created based on two trade books, *Because of Winn Dixie*, and *Tiger Rising* by Kate DiCamillo. Students were required to respond at least three times to the discussion threads created by the teacher. However, Jack had a total of 15 entries. He not only responded several times to the teacher created prompts, he also created two discussion threads one of which was entitled 'I am a writer.' Below is an excerpt from Jack's first comment on this prompt:

> I am currently writing a book on my computer about two men who live in a small town in Jenta. The book is called Jenta Warriors because it takes place in a town called Jenta. One day, the town is pillaged by raiders led by a scourge named Geneikus. The men, Inaj and Adiba, are knocked unconscious and taken to Geneikus' camp. They defeat Geneikus and his top assassins with the help of a man named Larveau…..

Here, we see Jack's identity construction as a writer. As Larson (2009) rightly pointed out, online space helped Jack to take ownership of the learning process and provided an avenue for him to showcase his skill and his passion for writing. At the time this thread was posted, none of Jack's

classmates and teacher knew he was writing a book. In another discussion thread entitled, *School Life*, Jack criticized the behavior of some students in his school:

> A problem I have in school is the other students. One can hardly go to the lavatory without getting hurt by students wrestling one another. The toilets often have large moats of body fluid that keep coming back. Also, students are not respectful to each other at all; often, students pick fights and call each other horrible names. Once, a kid in my class called me rude names in the hallway and later asked me for loose-leaf paper. I replied, 'no' and he went to everyone in the class and asked them all the same thing: 'Can I have a piece of paper because Jack is gay.' Students in school can be very mean.

Online discussion provided a third space that allowed Jack to express himself and create his own identity (Gutierrez & Stone, 2000). The identity transformation from a reluctant to an enthusiastic and prolific writer was made possible by a new sociocultural context and discursive space (Gutierrez & Larson, 2007). Jack's motivation and engagement with school after the teacher introduced more learner centered activities and facilitative learning spaces, present a compelling case that demonstrates that new times demand new approaches, flexibility and, above all, recognition of the needs of children in an information age. Sasha's case also buttresses the same argument.

Sasha.

Like Jack, Sasha became more engaged with school when school learning was aligned with her out-of school interests, especially when the teacher utilized knowledge of her interest as a springboard for classroom activities. For example, as soon as the teacher discovered that Sasha published a personal magazine, she was asked to pioneer the publication of a class magazine as the editor-in-chief, in recognition of her interest and experience with publishing. Sasha wrote the editorial comment for the magazine and with the help of co-editors, collected articles from peers, edited them, and got the magazine published. The success of the first magazine led to the publication of the second edition of the magazine. By recognizing Sasha's out-of-school interest and using her skill as a resource in the classroom, the teacher helped her transition from personal to school literacies (Ikpeze, 2009) through a culturally valued academic activity.

With an increase in the number of class activities that involved social interaction and collaboration, online research and exploration, Sasha finally found her niche. Sasha, who had previously described herself as a "talker"

clearly enjoyed literature circle discussions. She was analytical, critical and related the books to her life. Sasha also carried out an independent study on the caste system in India, a topic she said had been close to her heart. Like Jack, online literature discussion seemed to have captured her interest and engagement the most. Sasha had 17 entries during online literature discussion and most of them were very lengthy. She also created three threads, one of which was entitled 'School Life' and used this forum to narrate her experiences in school including what she described as the marginalization of fifth graders:

> Here is what I think is wrong with our school system:
>
> #1. The lunch aides: They are mean, rude and they do not care about your side of the story. They will make rules but then they will break the rules that they made.
>
> #2. The dress code: If you break the dress code you are going to be punished. I understand that part but they don't punish everyone. Seventh and eighth graders get off [e-z] easily. They make the 5th graders change their shirts because they are wearing a tank top in 80 degrees weather. It makes no sense and I don't get why they don't question the 7th and 8th graders. I mean, come on, they said they don't favor people; but the truth is they do …..

Sasha was working on a manuscript for a short story titled "*Being Jessica"*. While responding to the forum "*I am a Writer",* she highlighted some of her work. Below is an excerpt from the book:

> I just started to write a bunch of short stories and poems and I use some peoples' songs that I really like. By the time I'm in twelfth grade, it should be finished. It's about me, my life, how I feel about myself and other people I love and people I hate, and lessons I have learned in my life so far. I have two poems and three songs and one short story already. I want to get a publisher to publish it so I can make some money from it. But, I don't care if it is not published because I love to write. Like Katy Rose says "I'm teaching myself to dream" and I hope the dream will one day come true.

Indeed Sasha's dream as a writer cannot be overemphasized as it manifests in all her daily activities. She thrived on writing and uses it to protest some of the unjust social issues. For example, Sasha created a thread on Bullying and had this to say about this hot topic:

> Reading about *Because of Winn-Dixie* and *Tiger Rising* reminds me about bullies and bullying..... I have also suffered bullying

> and here is my story. I go to summer camp every year since I was six, and every year I would get teased and harassed about my weight. I do not get why people have to do this. So what! I'm overweight; it's not hurting you. But it makes me sad to see and think that people would do that and it makes me mad so I take it out on my friends and family when I really don't want to.

Sasha used the opportunity created by this forum to highlights issues that were focused on her prior personal experiences in life (Larson, 2009). An outspoken Sasha was asked to explain how she felt about most of the new activities in their classroom, to which she replied "I think I'm having a blast now." In sum, flexibility in instructional approach and the integration of web 2.0 tools, especially online writing, not only aligned with Jack and Sasha's out-of-school interests and future aspirations, but also created authentic contexts in which they were both engaged in their learning and took ownership of the learning process.

Discussion and Implications

Jack and Sasha present similar but unique portraits of elementary school readers and writers in new times. Research indicates that many children like Jack and Sasha struggle with both engagement and motivation in school (Guthrie, 2004; Millard, 2006). Some of the generally identified reasons for students' disengagement include the disjunction between the multimodal world of communication available in the wider community and the conventional print mode of the standard curriculum, as well as the perceived lack of relevance of what is offered in class to students' present and future interests (Millard, 2006). This best illustrates Jack and Sasha's case, highlighting a shifting intersection between personal and academic literacies which can facilitate or constrain school learning (Dyson, 1999). An effective pedagogical approach seems to be a panacea to bridging this divide. This happened when Mr. Pedro recognized the unique talents of Jack and Sasha, and allowed their out-of-school practices and values to be part of the school domain of knowledge.

Jack and Sasha wanted to pursue writing-oriented careers in the future. Both felt marginalized in school contexts where the dominance of traditional approaches to learning hampered their effective engagement. Labels such as "struggling" and "reluctant writer" were used by their teacher because they were viewed from a fixed or print-centric perspective. However, as classroom activities became more diverse, collaborative and inclusive, and as the teacher integrated digital and online literacies, Jack and Sasha became competent, engaged, proficient readers and writers.

Third space was constructed through numerous facilitative learning opportunities created by the teacher and students. For example, Jack's self-designed project allowed him to construct a hybrid space where he could critique a popular culture text (video game) and permitted his resistance to a traditional learning model where the teacher was regarded as the sole repository of knowledge. Online discussion helped to position both Jack and Sasha as critical producers and consumers of digital text to breaking with the official conventions of sanctioned literacies and teacher expectations.

By transforming his classroom instruction, Mr. Pedro was able to capture the interest and engagement of not only Jack and Sasha, but all of his students. Transformational pedagogy refers to a set of eclectic approaches that is both engaging and motivating, draws from students' lived experiences and facilitates critical response from students. It involves a "literacy of fusion" (Millard, 2006) and use of students' "funds of knowledge" (Moll & Gonzalez, 2001) which demand attentiveness from teachers to the worlds their students experience outside of the classroom. Like the findings of Millard (2006), a literacy of fusion enabled Jack and Sasha to work with multimodal texts and to link aspects of their chosen worlds with their symbolic identities to inform and motivate the development of academic literacy. They also served as a catalyst for constructing their multiple realities (Reinking et al., 1998) and for increased engagement and motivation.

The findings from this study and the discussions above highlight certain important issues related to literacy teaching and learning in the 21st century, with implications for teachers, students and schools in general. The study suggests that the teacher's role is paramount in implementing responsive and learner-centered instruction and in helping students link their personal identities to school learning. Students should be appreciated for the unique talents they bring to the classroom and these talents should be utilized to achieve curricular goals. Integrating new literacies, including Web 2.0 tools in purposeful ways, as well as other learner-centered approaches, seems to be one effective way to foster engagement and motivation.

There is a need to create opportunities within and beyond the classroom for authentic knowledge construction. Helping to create spaces where students can collaborate, read and write for real purpose and for real audiences that reflect real life communicative events has become imperative in today's information age. Children of "Generation 2.0" (Jacobs, 2011) are likely to be bored in the traditional classroom unless activities are fun and engaging or reflect their lived experiences. The fast paced world of ICTs apparently influences the way they think, act and their

level of engagement. Instead of making the classroom the end all in their learning, teachers should provide these learners access and opportunities to navigate different productive and facilitative spaces for learning which include out-of-school, private, public, hybrid and virtual spaces. This will motivate, support, and extend their repertoires of practice and equip them strategically to transfer discursive practices into new spaces for more meaningful learning.

With children born and growing up in a digital world, there is a need for an ecological balance between print and digital literacies. More than ever before, it is now important to address issues around an increasing number of children who feel marginalized in the school system. One of such issues is paper and pencil writing versus computer-based writing. With computers becoming more and more ubiquitous, children are finding it unattractive to compose via paper and pencil. Teachers, especially at the elementary school level, need to acknowledge this bourgeoning reality of resistance and respond accordingly by integrating digital literacies more purposefully.

Conclusion

Education in the 21st century must prepare children to build suitable portfolios for success in the real world. The preponderance of digital technologies and the emerging globalized information economy implies that tomorrow's schools must be equipped with the right physical and technological infrastructure. Qualified teachers must help students develop proficiency with various technological tools that would enable them to use, create, critique, analyze and evaluate multi-media texts, problem solving and collaborating with their immediate and global communities. More attention should be directed to student engagement and creativity, as well as life and career skills, not just student achievement as measured by standardized tests. Children need to be given the opportunity to employ a variety of ways of knowing, telling, designing, making texts, and engaging in meaningful dialogue in relation to their preferred modes and dispositions for learning. Transforming the schools of the future will also entail continuous professional development of teachers to help them acquire the knowledge, skills and dispositions necessary for effective teaching in the 21st century and beyond. Changing literacies imply changing standards for instruction and assessment, and recognition of the many and varied ways and spaces in which literacy practices occur. Jack and Sasha's cases help us to relate to these crucial issues.

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Journal of School Connections
Fall 2012, Vol. 4, No. 1, pp. 25-52

Using a Collaborative Blog Project to Introduce Disciplinary Literacy Strategies in Social Studies Pre-Service Teacher Education

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Disciplinary literacy has redefined the field of content area literacy and how teachers approach literacy instruction in the content areas. Yet, limited opportunities exist in teacher preparation programs for pre-service teachers to experience disciplinary literacy instruction and practice. This paper addresses this issue by describing a project imbedded into an undergraduate content area reading course for secondary social studies pre-service teachers. The project provided pre-service teachers with instruction that modeled disciplinary literacy strategies during coursework and opportunities for practice using those strategies through a blog project with eighth-graders in a social studies class. Findings suggested that pre-service teachers considered explicit strategy instruction and blogging to be useful and engaging tools to experience and practice using disciplinary literacy instruction in history. These findings support integrating opportunities for pre-service teachers to practice instruction, grounded in disciplinary literacy, using online platforms for discussion, such as blogging, with students. Pre-service teachers' perceptions of the project were considered to suggest implications for practice using this instructional approach

Historically, researchers and educators in the field of content area literacy have faced challenges in convincing or motivating content area teachers to include literacy practices in the classroom (O'Brien, Stewart, & Moje, 1995; Ratekin, Simpson, Alvermann, & Dishner, 1985; Siebert & Draper, 2008). Both pre-service and in-service teachers struggle with integrating literacy instruction into content area classes, believing that

there is not enough time for literacy instruction in an already packed content classroom schedule (Alvermann & Moore, 1991; Cantrell, Burns, & Callaway, 2009; O'Brien et al., 1995; Stewart & O'Brien, 1989). Recently, however, a new focus on disciplinary literacy has emerged that may offer a more attractive approach to literacy in the content areas. This new focus shifts emphasis in content area literacy from the use of generalizable strategies that may be used in and across all content areas, to the study of practices and knowledge that are specific to each content area (Juel, Hebard, Haubner, & Moran, 2010; Moje, 2008; Shanahan, 2009; Shanahan & Shanahan, 2008). Disciplinary literacy practices are fundamental to knowledge and learning in specific disciplines and aim to incorporate these practices as a fluid and integral part of content (Moje, 2008; Shanahan, 2009; Shanahan & Shanahan, 2008).

Defining and Understanding Disciplinary Literacy

Disciplinary literacy urges teachers in each specific discipline to consider the practices required to understand individual fields of study, such as art, English, mathematics, music, science, and social studies, as a form of literacy (Draper & Siebert, 2010), and to incorporate instruction grounded in these practices into their classrooms. Although traditional content literacy strategies may still be useful in content classrooms, these strategies must be carefully selected or refined to enhance and target disciplinary practices. For example, a history teacher may use a discussion web to help scaffold students' discussion and understanding of different points of view in history. However, a geometry teacher may not find a discussion web useful in instruction related to understanding principles of the Pythagorean Theorem. Therefore, disciplinary literacy encourages content teachers to approach literacy instruction in their discipline by teaching students practices that an expert in the discipline may use. Further, disciplinary literacy instruction would encourage students to consider how these practices might be used in everyday life, underscoring why literacy in each discipline is important outside of school (Moje, 2008; 2010/2011).

Although disciplinary literacy may potentially change content area instruction, challenges remain. In this article, I will address the specific challenge that pre-service teacher education offers limited opportunities to incorporate and develop disciplinary literacy during coursework (Moje, 2008). Using this lens, I will describe a collaborative blogging project that was incorporated into a university-level content area reading course for secondary pre-service social studies teachers. To concentrate on the aforementioned challenge, I used a phenomenological approach (Creswell, 2007; Moustakas, 1994) to capture the ways in which pre-service teachers

responded to participation in a disciplinary literacy project. My data collection and analysis were guided by the following research question:

How do pre-service teachers respond to participating in a disciplinary literacy project that incorporates coursework instruction and practice with middle-school students?

This question placed the pre-service teachers' experiences and reactions to disciplinary literacy practices front and center, allowing for in-depth consideration of using disciplinary literacy instruction in teacher education coursework.

Theoretical Framework

Disciplinary Literacy in History

In the field of history, the call for discipline-specific thinking and learning practices have existed for decades (Barton & Levstik, 2004; Holt, 1990; VanSledright, 2002; Wineburg, 1991), and strategies or approaches have been developed in this field that provide a scaffold for students to approach historical texts with a critical eye, like historians (see Beyer, 2008; Nokes, Dole, & Hacker, 2007; Saye & Brush, 2002; Wineburg, 1991, 2001). The emphasis on investigation and critical reading in history necessitates reading as a crucial component of history education, and Afflerbach and VanSledright (2001) have argued that learning history revolves around reading, suggesting it is natural to connect the fields of social studies and literacy. Researchers have also argued that to study history through a disciplinary focus, students must be taught to read and think like historians to understand how different perspectives shape historical texts (Afflerbach & VanSledright, 2001; Barton & Levstik, 2004; Shanahan & Shanahan, 2008; Stahl et al., 1996; VanSledright, 2002a). Thus, these acts of reading and thinking are specific to studying history and define disciplinary literacy in history.

Further, students who successfully engage in studying history through a disciplinary approach may make more meaningful connections between historical events and prior knowledge about history (Barton & Levstik, 2004; Martin & Wineburg, 2008; VanSledright, 2002a; Wineburg, 2001). Students who question historical texts and understand history from various viewpoints may develop a more solid foundation for understanding the present, such as governmental, legal, and political policies, and this type of understanding and thinking may contribute to more informed citizenry (Paxton & Wineburg, 2000; Wineburg, 2001). However, disciplinary-literacy instruction in social studies/history requires scaffolding of reflection and critical thinking skills (Barton & Levstik, 2004). Yet, most

students are lacking in these skills because they are not commonly used in social studies classrooms (Barton & Levstik, 2004; Thorton, 2001). Most students read historical texts as factual, without considering the source or context of the text (Afflerbach & VanSledright, 2001; Vansledright, 2002b), a problem that seems to be rooted in the practice of history being taught as a content area warranting assessment of historical events and details with relatively little regard for interpretation (Barton, 1997; VanSledright 2002a, 2002b). Disciplinary literacy strategies, such as the strategies provided to pre-service teachers in this study, to scaffold students' evaluation, interpretation, and critical questioning of texts may be beneficial to successfully integrating disciplinary literacy into the social studies classroom.

Teacher Beliefs about Disciplinary Literacy in Social Studies

Confounding these student-centered issues concerning disciplinary literacy in social studies or history is teacher resistance to implement disciplinary literacy instruction (Moje, 2008; Saye & Brush, 2002; Shanahan & Shanahan, 2008). Many teachers, particularly in social studies, are not familiar or comfortable with modeling disciplinary practices to students and rely primarily on textbooks to convey information that they then have students memorize (Barton & Levstik, 2004; Shanahan & Shanahan, 2008). Even experienced social studies teachers are hesitant to have students question text and engage in critical reading and thinking in history (Saye & Brush, 2002). This hesitation may be in part because they believe social studies should be taught through a cultural transmission mode (Stanley & Nelson, 1994), or because they mimic the instructional method they experienced in secondary education (Chiodo & Brown, 2007). Another explanation of the absence of disciplinary literacy practices may be attributed to the social studies teachers themselves, who may struggle with understanding and analyzing history (Lucey, Hatch, & Ginnangelo, 2010; Lucey, Hawkins, & Ginnangelo, 2009), which further complicates the integration of disciplinary literacy into the classroom. Although in-services and teacher workshops may create opportunities for content teachers to strengthen positive beliefs about literacy (Cantrell et al., 2009), action needs to be taken in pre-service teacher education to expose pre-service teachers to methods of fluidly integrating literacy into individual content areas that promote disciplinary learning (Moje, 2008; 2010/2011).

However, pre-service teachers, including those in social studies, tend to enter teacher education with established beliefs about instruction, usually based on their own secondary experiences (Chiodo & Brown, 2007; Hall, 2005; Lortie, 2002), which may perpetuate their beliefs of

imparting knowledge to students rather than engaging them in critical thinking or disciplinary literacy practices where knowledge can be constructed. Perhaps, pre-service teachers have not been given sufficient experience using literacy-based instructional practices outside of their coursework before entering the classroom (Anders, 2008). Providing pre-service teachers with the opportunity to engage in practice, such as critical discussion via blogging about history texts with middle-school students, may help to encourage teachers to employ disciplinary literacy instruction and activities in their future classrooms.

Blogging as Reflective Writing

When weblogs (commonly referred to as blogs) were introduced in the early 1990s, their sole function was to provide information, thoughts, reflections, and sometimes hyperlinks to share with outside readers (Blood, 2002). However, the later addition of the comment feature created a space for writers and readers to interact and share ideas through reflection and comments to reflection. This comment feature allowed readers to interact with the blog author to encourage further dialogue, thought, or explanation facilitated by a shared online space, creating a sense of community through collaborative interactions (Shoffner, 2007). Certainly, blogs facilitate a shared space of reflection, but blogs are highly personalized spaces specific to the individual author's personal tastes. For example, blogs may contain links to an author's webpage, Facebook page, news sources, shopping links, or other online interests. They may also be used as course discussion sites, group support systems, community bulletin boards, as well as personal journals and hyperlinked websites (Risinger, 2006; Shoffner, 2007). Thus, in education and literacy, online communication platforms may serve a number of purposes that support both group and individual learning (Leu & Kinzer, 2000).

Blogging, or posting and responding to comments made on blogs, may facilitate online learning for pre-service teachers and middle-school students as they allow users to revisit continuous dialogue chronologically, and they require limited technological knowledge (Martindale & Wiley, 2005). Moreover, blogging offers practical affordances in education. In general, online discussion allows for active knowledge construction in which users compare and contrast their own knowledge to others' ideas and comments, posing questions using the comment feature in blogs (Shoffner, 2007; Weiler, 2003). Consequently, in education, blogging may promote a constructivist process of learning (Vygotsky, 1978) between blog authors, blog readers and blog responders. This process creates new, co-constructed knowledge developed between authors and

readers, and blog site visitors (Maloney, 2007). The asynchronous feature of blogging requires extended and critical thinking beyond the walls of the classroom (Black, 2005; McDuffie & Slavit, 2003), allowing discussion to continue beyond the set time structures of the middle or high-school classroom. Further, constructive response posts or feedback from blog readers may be both motivating (Lenhart, Arafeh, Smith & Macgill, 2008) and instructional (Sweeny, 2010). Therefore, blogging was selected to facilitate online discussion in this project because it encouraged reflection and allowed for critical and collaborative discussion about history texts between two geographically separate populations of participants.

Using a Blog Project to Promote Disciplinary Literacy in Social Studies

The purpose of this project was twofold to: (a) expose pre-service social studies teachers to disciplinary literacy instruction through lessons using explicit literacy strategies grounded in Questioning the Author (QtA) (Beck, McKeown, Hamilton, & Kucan, 1997; McKeown, Beck, & Worthy, 1993) and thinking strategies for history and social studies (Beyer, 2008); and (b) provide pre-service teachers with practice using the questioning or heuristic components of the strategies, via blogging with middle-school students. Research indicates that many teachers do not feel comfortable with or are unprepared to integrate disciplinary literacy instruction into their classrooms (Shanahan & Shanahan, 2008). I decided that providing scaffolded instructional strategies would be useful in helping students consider the types of strategies/questions to use in their online discussions to support their blog buddy's thinking about history texts.

The QtA and critical thinking strategies were chosen as foundations for the disciplinary literacy strategies because they provided a grounded method of scaffolding historical texts through questioning, like historians, and making critical connections throughout the text which may facilitate text-to-life application, a goal of disciplinary literacy (Moje, 2008). Again, QtA is not necessarily specific to the history discipline, but in this project, it was used as a foundational literacy strategy for disciplinary literacy learning because it emphasized investigating texts, similar to the practices a historian might use. Indeed, QtA is commonly used as a general literacy strategy that may be used in multiple disciplines, but in this project it was modified and integrated with thinking strategies specific to social studies (Beyer, 2008) to introduce and help scaffold disciplinary literacy in middle-school social studies, which will be briefly described in the following sections. The project then aimed to extend all participants'

experience and practice using those strategies through a collaborative blog project that connected pre-service teachers with eighth-grade students to critically consider and discuss historical vignettes concerning important female figures in South Carolina history in the book, *South Carolina Women* (SCW), by Idella Bodie (1991). A blog was selected as the discussion platform because it was free and because of the reflective and collaborative nature that platform affords.

Methods

Project Context

The project was conducted over 16 weeks at the beginning of the academic year in a four-year public university in the Southeastern United States and in a public charter middle-school in South Carolina. The university was a medium-size land-grant institution serving approximately 15,000 undergraduate students with 82% Caucasian students, 7% African American students, 1% Hispanic students, 2% Asian students, and 8% of students not indicating race. Sixty-eight percent of students at the university were in-state students. The pre-service teachers were 21 (9 females and 12 males) undergraduate seniors in the practicum semester of their coursework immediately prior to student teaching. All of the pre-service teachers were Caucasian. The university did not offer an undergraduate middle-school education degree or certification; therefore, the pre-service teachers were working toward secondary social studies certification (grades 9-12). Nevertheless, I felt that the pre-service teachers would benefit from experience interacting with eighth-graders, as they could gain background information about the type of history instruction and thinking practices specific to history that could be beneficial to their future practices as high school social studies teachers.

The middle-school, located in South Carolina, was classified as a public charter school with single-gender classrooms. This classification meant that the school was open to all students who lived in the school district through an application and lottery system. However, as transportation and meals had to be provided by parents or guardians, most students were of a middle- to upper-middle-class SES. Students at the middle-school were primarily average to above-average academically, with 35% of students being classified as gifted and talented. School enrollment consisted of 7% African American, 3% Asian, 1% Hispanic, and 89% Caucasian students. The middle-school students in this project were 22 eighth-grade females (3 African American and 19 Caucasian) in a South Carolina state history

class taught by Mr. Rivers (all names are pseudonyms), a third-year middle-school social studies teacher interested in integrating literacy into his classroom. Most students in the class were average to above-average in reading comprehension ability according to their teacher, which reduced concerns for how reading comprehension skills may have affected their understanding of disciplinary literacy strategies and their participation in the blog project. Also, the blog project was designed for one-on-one pre-service teacher to student interaction, reducing the effects of the single-gender aspect of the classroom on results of the project.

Although I collected data for both sites and groups of participants, the pre-service teachers are the focus of this manuscript. Nevertheless, I will describe collaborating with the middle-school teacher and university instructor, and how the project was utilized for both sets of participants to provide a full description of the project.

Collaboration

Formerly, I was a high-school English teacher with a strong interest and background in history studies through literature. Primarily, I taught American and world literature, and I often approached literature instruction in my classroom through the focus of how history may have shaped literature. I also used practices that engaged students in deciphering past events based on a variety of literary forms (e.g. speeches, sermons, poems, stories, novels, and graphic/pictorial portrayals that accompanied various forms of literature). As an English teacher, I encouraged my students to think about literature as a product of the past that may be used to form interpretations of a time period or event in history. Yet, year after year, my students, who were primarily in tenth and eleventh grades, argued that history was best portrayed in their history textbooks, which they felt gave the most unbiased version of history. Thus, my personal experience working with students studying historical texts sparked my current interest in and research in disciplinary literacy in history. However, my professional experiences shaped my decision to work with slightly younger students in middle-school to provide them with earlier inquiry-based experiences and to collaborate with social studies educators to incorporate disciplinary literacy as a part of their existing curriculum.

In this project, Mr. Rivers and I designed lessons for his middle-school students using the disciplinary literacy strategies I developed. These lessons were also used as model lessons for the pre-service teachers. The lessons integrated disciplinary literacy into the existing social studies curriculum and aligned with the following South Carolina state standards as shown in Table 1.

Table 1
Focal South Carolina State Standards in Eighth-Grade Social Studies/History

Standard	Description
8-1.4	Explain the growth of the African American population during the colonial period and the significance of African Americans in the developing culture (e.g., Gullah) and economy of South Carolina, including the origins of African American slaves, the growth of the slave trade, the impact of population imbalance between African and European Americans, and the Stono Rebellion and subsequent laws to control the slave population.
8-1.6	Explain how South Carolinians used natural, human, and political resources to gain economic prosperity, including trade with Barbados, rice planting, Eliza Lucas Pinckney and indigo planting, the slave trade, and the practice of mercantilism.

We developed three lessons focusing on different strategies, (described in the next section) , grounded in QtA (Beck et al., 1997; McKeown et al., 1993) and thinking in social studies and history (Beyer, 2008), to introduce disciplinary literacy strategies to the middle-school students and to use as model lessons for the pre-service teachers. I taught these three lessons in three different class periods (one per month). Mr. Rivers observed my lessons and then used similar versions of these strategies in his classroom at least weekly throughout the project to scaffold his students in disciplinary literacy practices.

I was not the instructor of the content area reading course, but I worked collaboratively with the instructor to imbed this project into her course. The instructor was an established professor and researcher in the field of content area literacy and taught her content area literacy courses using a disciplinary lens, which was feasible because the content area literacy courses at the participating university were divided by content area. I attended most class meetings and modeled the three lessons discussed previously in three separate class meetings. The model lessons were conducted in the same format each session. First, pre-service teachers would engage in the same lesson the middle-school students experienced to learn one of the three disciplinary literacy strategies. During the lesson, time was allotted for the pre-service teachers to discuss, ask questions

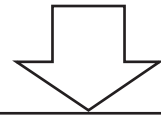
about, and comment on how different elements of the lesson utilized disciplinary literacy. Following each of the model lessons, pre-service teachers would unpack the lesson by reflecting, through discussion and group work, on the learning cycle and the role of the disciplinary literacy strategy in content learning. They also submitted anonymous exit slips at the end of each lesson reacting to the lesson and reflecting on their perceptions of the disciplinary literacy strategy. At the end of the semester, pre-service teachers submitted formal, written reflections about their experiences participating in the blog project.

Disciplinary Literacy Strategies

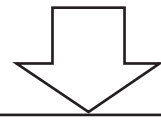
A different strategy was used in each model lesson. Each strategy was introduced in a model lesson, and students practiced using this strategy in and out of class in various assignments for approximately one month before moving on to the next strategy. Again, these strategies or instructional tools certainly may be adapted to fit other content areas, but they were considered disciplinary because they focused on and scaffolded critical evaluation of texts in history, which is a disciplinary practice in history. The first strategy used a graphic organizer (see Figure 1) to scaffold instruction.

In the first model lesson, this strategy was used with a middle-school history textbook excerpt about a South Carolina plantation owner in the Colonial Period, Daniel Axtell. We chose this strategy because Mr. Rivers felt that the excerpt left out information about Axtell, and he wanted his students to begin to question the text in their textbooks and think critically about what they read in their textbooks. Thus, a graphic organizer that scaffolded thinking about missing information was considered a useful disciplinary literacy strategy.

Think about	**Questions I can ask myself**	**Thoughts/Explanations**
Author's message	What is the author trying tell me? Is the author's message biased?	
Author's clarity	Is there anything in the text that I don't understand? Does the author's choice of words make sense to me?	
Author's reasons	Why is the author telling me this information? What is the purpose of this text?	



Think about	**Ask myself**	**Thoughts/Explanations**
Links	What did I think about when I read the text? What prior knowledge can I connect to the text?	
Broken or missing links	What do I still want to know about? What do I wonder after finishing the reading?	
Extension	What can I do to find out more about what I'm still wondering?	



Negotiations/Conclusions
Now that I've thought about the text from the author's perspective and my own, what conclusions can I draw? What are my reactions?
Conclusions:

Figure 1. Critical Thinking Graphic Organizer

The second strategy utilized an inference note-making procedure (see Figure 2) to provide students with scaffolding of critical thinking for independent reading or single-student activities. The inference note strategy was chosen to help guide students' reading of text and to provide scaffolding for questioning the text, critical thinking and evaluation.

Before Reading - Brainstorm	**Notes**
What do I already know about Colonial Carolina slaves' language or dialect? What do I already know about Colonial Carolina slaves' religious beliefs?	
During Reading – Gather information	
What does the author directly or specifically tell me in this text about African Americans in the Carolinas?	
After Reading - Infer	
How does the information I knew before reading connect to the information I learned during reading (or, does it)? Can I draw any personal connections to this text? If so, what? What inferences can I make? Do my inferences agree with or disagree with what I already knew? What do I still wonder after reading this text?	

Figure 2. Inference Note-Making Guide

Figure 2 was used in the second model lesson with a middle-school history textbook excerpt about African Americans' religion in Colonial South Carolina but could readily be adapted to numerous historical texts.

A third strategy utilized whole-class discussion through a discussion web (see Figure 3).

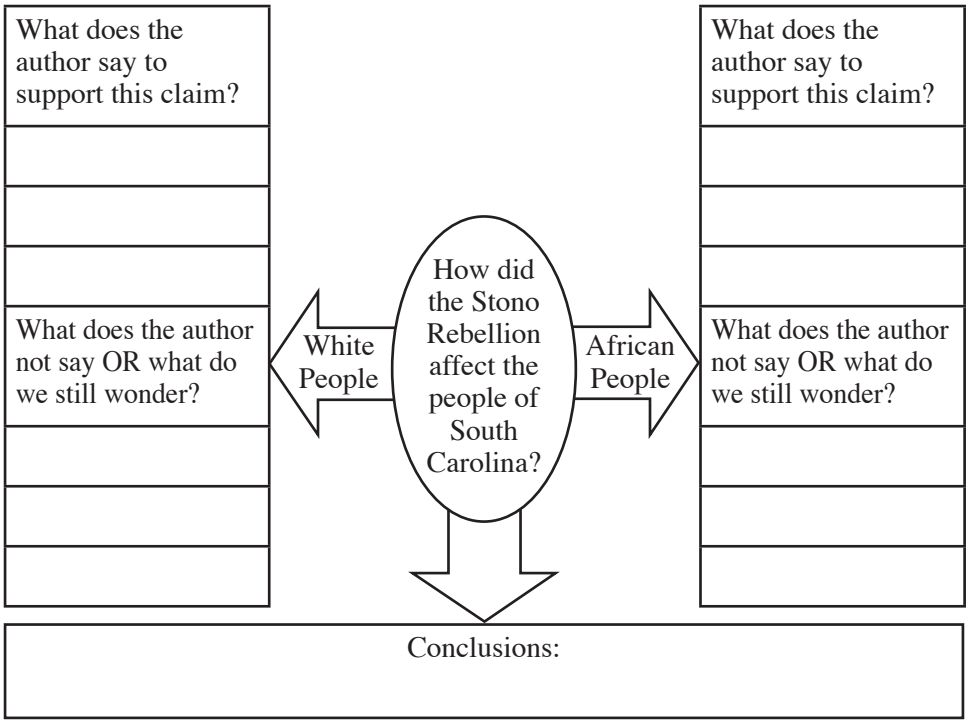


Figure 3. Discussion Web

This strategy provided guidance and equal participation for class discussion on how the Stono Rebellion affected white and African people in South Carolina during the Colonial Period. Following a traditional discussion web lesson format, this strategy offered students a scaffolded approach to question text from different viewpoints and also compare their interpretations and conclusions, which are both disciplinary practices in history.

Blog Project Design and Discussion

Each middle-school student was randomly assigned a pre-service teacher blog buddy to correspond with throughout the project to discuss vignettes in SCW. Due to uneven participant numbers, one pre-service teacher volunteered to have two blog buddies. Middle-school students created and managed their private blog sites through Google Blogger (www.blogger.com), a free blog platform that can be secured through user settings, and initiated blogging. Details about the blog sites, blogging, and the purpose of the project were provided for parents in the permission slips, which had to be signed and returned to Mr. Rivers before students

could participate in the project. Students created their blog sites during a class visit to the school computer lab, and Mr. Rivers provided specific instructions for students to follow regarding privacy and security settings. Students created their accounts so that their blog sites were unsearchable through a search engine; only users who had their specific blog site address could access their blog. Because pre-service teachers had already passed background checks before beginning their practicum semester and were training to become teachers, we felt comfortable having them talk to students online. Also, Mr. Rivers and I closely monitored all blog sites throughout the project.

Each middle-school student was required to respond to all of his or her buddy, pre-service teacher's posts. All participants were given a reading schedule for SCW and were instructed to read and respond to two to three vignettes every two weeks. These vignettes were arranged chronologically in history, so the women they were reading about lived in the time period the middle-school students were learning about in class. On the weeks where the middle-school students did not post reflections, their blog buddies read and responded to their reflection from the week before. All of the middle-school students' posts reflected on the assigned readings except for the first blog post, which was a getting-to-know-you post between buddies to learn about each other and establish a relationship.

To provide middle-school students with some guidance to begin their reflective writing, Mr. Rivers provided an open-ended prompt of "How do these women's stories help me understand South Carolina history?" Similar to the disciplinary literacy strategies they were using in class, students were encouraged to write reflections based on what they still questioned after reading the vignettes, how or if they were able to relate to the women described in the vignettes, how or if they were able to relate the women to what they were studying in class, and what conclusions they drew about the women after reading the vignettes. Pre-service teachers responded by discussing their blog buddy's reaction to the text and then used the same types of questioning and scaffolding techniques as provided in the disciplinary literacy strategies to extend their buddy's reflection on the assigned vignettes and to promote follow-up discussion. Posts were made in a continuous thread, so the discussion proceeded as a conversation with middle-school students responding to their buddy's responses and then moving on to reflect on the next readings. Figure 4 is a snapshot of one student reflection and their pre-service teacher buddy's response (screen names have been removed).

Student Post

Pre-Service Teacher Response

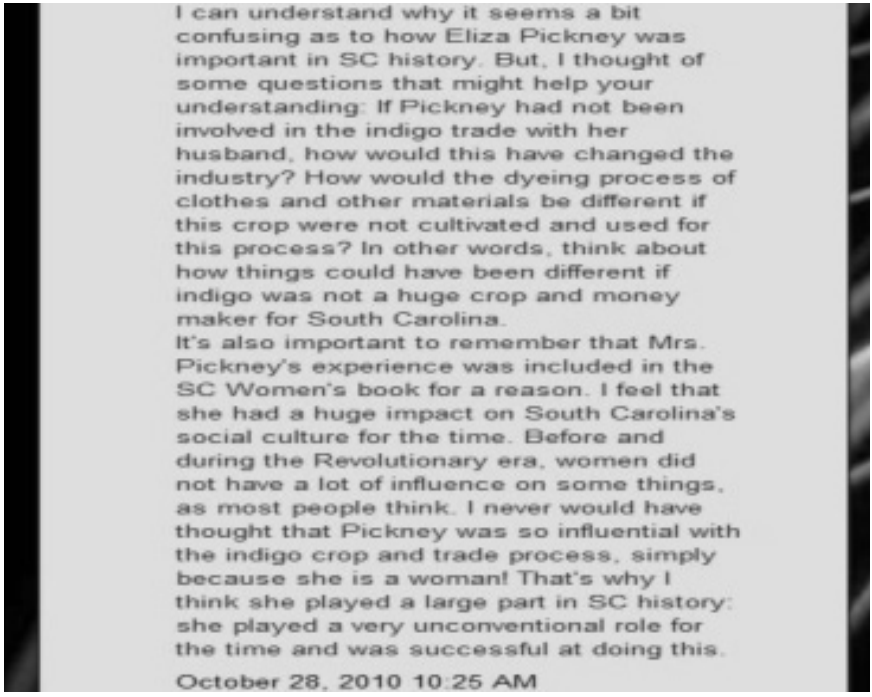


Figure 4. Sample Blog Exchange

A minimum of five reflections by middle-school students and five responses by pre-service teachers were required, but students were not limited in the amount of times they could post. As mentioned previously, pre-service teachers were instructed to respond to all blog posts created by their blog buddies. Some blog buddies exceeded the number of minimum posts, carrying on an intricate dialogue or conversation through blogging, and some blog buddies posted only the required minimum. All participants received project grades in their respective classes for their participation based on fulfilling the required number of posts, timeliness of posting, and content of the posts.

A phenomenological study (Creswell, 2007; Moustakas, 1994) was used to examine the pre-service teachers' perceptions. This approach was guided by the following research question:

How do pre-service teachers respond to participating in a disciplinary-literacy project that incorporates coursework instruction and practice with middle-school students?

Essentially, a descriptive and interpretive approach was used to analyze pre-service teachers' lived experiences in this project, which is appropriate to phenomenological research (Creswell, 2007), and to suggest future implications for this type of project. Phenomenological approaches are commonly used to describe participants' common experiences (Creswell, 2007), and I sought to understand how the 21 pre-service teachers, who all agreed to participate in this project, experienced instruction and practice using disciplinary literacy strategies in history. To understand these experiences, I collected anonymous exit slips and formal reflections, described in the Collaboration section, as data. As outlined by Moustakas (1994), I analyzed data by reducing information to significant quotes, which collectively created themes that are illustrated through textual (what participants experienced) and structural descriptions (the context of their experience) in the following sections to describe the essence of the pre-service teachers' experiences in this project.

Specifically, I used Creswell's (2007) basic approach, which is a modified version of Moustakas' (1994) approach, to data analysis in a phenomenology. First, all data were read several times to gain an overall understanding of them. I then developed, in a Word document, a list of significant statements from the exit slips and formal reflections that described pre-service teachers' responses to participating in the project, working to eliminate repetitive or overlapping statements. Next, I formulated or coded, by hand, meanings for each significant statement. Finally, I grouped the statements into meaning units, which allowed for the emergence of themes common to all participants' experiences.

A total of 59 anonymous exit slips and 21 formal reflections were collected as data in this study. From these data, 87 significant statements were extracted and arranged in a table that contained significant statements and formulated meanings, which then were reduced into themes (adapted from Anderson & Spencer's approach to data analysis as cited in Creswell, 2007). Table 2 represents example significant statements, meanings, and resulting themes.

Table 2
Example of significant statements, meanings, and themes

Significant Statement	Formulated Meaning	Theme
"The graphic organizer is a great tool to structure and have critical thinking occur in a clear manner with focused direction." (Kate, Formal Reflection)	Scaffolded, explicit instruction is necessary in critical thinking.	Importance of explicit and guided instruction in disciplinary literacy instruction in history.
"[Note-making] is a good reading and thinking strategy in history, especially when the text can be boring or abstract. It focuses critical thought as a process of looking at prior knowledge, knowledge learned, and then comparing sources of knowledge or information. All organized and useful tools to think about history." (Exit Slip)	Using a strategy to organize and guide reading, critical thinking, and learning about history texts is useful in history – especially when dealing with tedious texts.	
"The blog project is a good way for us to practice "teaching" students by trying to think critically ourselves and use the strategies (in some manner) that we've been learning, which is so important in our teacher training." (Exit Slip)	The blog project offered valuable practice in teaching and also personal practice in thinking critically and using the disciplinary-literacy strategies.	Usefulness of blogging for teaching and learning practice
"Blogging with a student helped me become a facilitator and work through how I might phrase direction for critical thinking in a manner that is appropriate to an adolescent student." (Callie, Formal Reflection)	Blogging provided authentic experience talking to and teaching an adolescent.	

Results and Discussion

Examining Pre-Service Teachers' Responses to the Project

Although nuanced variations of meaning units were recorded in data analysis, two encompassing themes regarding pre-service teachers' responses to participating in a disciplinary literacy project incorporating coursework and practice emerged from the data. These two primary themes, focusing on perceptions of explicit, disciplinary literacy instruction and practice and online discussion with adolescents about history texts, will be described in subsequent sections with implications and suggestions following each.

Benefits of Explicit Instruction and Practice in Disciplinary Literacy

Overall, the pre-service teachers indicated that the explicit, tangible disciplinary literacy strategies introduced in the project were useful. Pre-service teachers reflected on the strategies, considering how they might use them in their future classrooms, which provided a portrayal of the usefulness of the strategies for their future classrooms. For example, some reflected on the potential learning involved in the project.

> I personally found these strategies to be extremely helpful and beneficial to both me as a future teacher and for future students. Telling someone information is just that, telling them. But they really learn when they have a hand in coming up with their own answers, opinions and questions. (Exit Slip)

Further as Wes explained in his formal reflection, "By using this process in the classroom, I feel like we could better help our students to understand why it is important to think and read critically." Thus, pre-service teachers felt that the strategies served a dual purpose for them and their future students. They indicated that disciplinary literacy strategies may be useful for teachers as well as students in considering historical texts. For example, an exit slip indicated, "I really liked questioning the text and I think that we, as instructors, should also use it before presenting reading to our students." This exit slip comment not only indicated the perceived usefulness of the strategy, but it also suggested that some pre-service teachers were beginning to think how they may select and present texts in their future classrooms. Others viewed the strategies as work-intensive, but felt that they may prove useful in future instruction. For example, one student reflected:

> This strategy is a good way of making the students stop and think

> as they read. It seems like it took a lot of prep work, which I'm trying to reduce in my first year of teaching, but I should definitely use this strategy in my classroom. (Exit Slip)

Reduced prep-time was a common theme in class discussion and in exit slips, and many pre-service teachers were concerned with using strategies that were time-consuming to prepare and implement. However, pre-service teachers provided generally positive reactions about their experience in the project and the practice it provided, praising the lessons and strategies for being explicit and targeting specific aspects of studying history, such as considering author bias. As one pre-service teacher indicated after a model lesson:

> Because of author bias, there's no way to know everything that has happened and the way people thought about it except through the documents they kept and historical text. I hadn't really thought about this in my classroom. The strategies helped me with this. I think this is going to be one of the biggest things I take to my classroom. (Exit Slip)

As this reflection illustrated, explicit strategies seemed to spark thought about approaching history instruction in future classrooms and using discipline-specific strategies helped pre-service teachers form concrete ideas about how instruction might look in their future classrooms.

However, a few pre-service teachers reported that the explicit strategies highlighted their own struggles with scaffolding, and they noted using disciplinary literacy strategies illuminated their personal weaknesses in the project, specifying that they did not feel equipped with the necessary instructional tools and knowledge to help their blog buddies think critically about text. Leann reflected:

> I will admit that I used this assignment as a means to refresh what critical thinking skills I had, which were somewhat small. This made discussion and scaffolding difficult for me. I needed more concrete instruction on how to scaffold my buddy's thinking and how to use critical thinking skills with this text.

Thus, varying levels of comfort using the disciplinary literacy strategies emerged based on pre-service teachers' understanding of critical thinking but highlight perceived benefits of engaging in and using the explicit strategies.

Suggestions and Implications for Integrating Strategy Instruction and Practice into Pre-service Social Studies Teacher Education

This project was a small portion of the pre-service teachers'

coursework in the class and further instruction and practice, perhaps with each other, using explicit disciplinary literacy instructional techniques may be beneficial for pre-service teachers to understand how to appropriately scaffold and guide students' thinking when considering historical texts. Online or in-class discussions about history texts among pre-service teachers to practice inquiry-based methods of reading and thinking may reinforce disciplinary literacy practices. Because comfort may be a factor in teachers' decisions to integrate disciplinary literacy instruction into their curricula (Shanahan & Shanahan, 2008), additional practice through coursework may increase pre-service teachers' comfort using disciplinary literacy. Also, considering many social studies teachers use a transmission mode of teaching (Chiodo & Brown, 2007), projects that provide positive and supportive experiences using different approaches to social studies instruction may encourage pre-service teachers to use similar practices in future classrooms (Doppen, 2007).

In hindsight, a minimum of five blog responses and three lessons using disciplinary literacy strategies did not provide adequate experience and practice. More exposure to, and practice with, disciplinary literacy may be necessary for social studies pre-service teachers to understand and feel comfortable making disciplinary literacy a part of their future history classrooms. In terms of the blog project, increased exposure and practice may be accomplished by increasing the frequency of postings. Generally, these disciplinary literacy practices align with methods of inquiry used in the field of social studies, and transferring these practices to a social studies methods course may also be a practical solution for added exposure to disciplinary literacy practices, underlining the importance of collaboration. Further, as many universities do not offer content-specific sections of content area literacy courses, collaboration may be necessary between departments to design overlapping projects between methods and literacy courses that integrate discipline-specific practices and instruction with literacy methods. This type of collaboration may be feasible, dually beneficial (Draper, Broomhead, Jensen, & Siebert, 2010), and reinforce the acceptance and use of disciplinary literacy practices (Moje, 2008).

Online Discussion about History Texts with Adolescents

Although most pre-service teachers' responses to the explicit strategies introduced in the project were generally positive, all pre-service teachers felt the online discussion component of the blog project provided much needed experience discussing history texts. Pre-service teachers indicated that they enjoyed the discussion component and the brief experience they had talking about history texts with students because they were practicing a type of social studies instruction as well as experiencing

general discussion and interaction with a student in a social studies class. As Jed noted, "I think that one of the most important jobs for a teacher is connecting with his or her students, and our blog buddy project was a great way to practice these skills." Recurring sentiments in both exit slips and reflections focused on forming relationships and making connections through one-one-one discussion with "real" students. Further, this type of discussion was something most of the pre-service teachers, who were all in their senior year of their program, had not had the opportunity to engage in previously. Undoubtedly, they had all interacted with students on some level through their practicum experience and other required field experiences, but the instructional demands of those experiences had limited one-on-one interaction with individual students for extended periods of time. The blog project allowed pre-service teachers to not only experience disciplinary literacy practices but to also view how students reacted to those practices and how they thought about historical texts.

Many pre-service teachers suggested they struggled with talking to an adolescent or had never thought about how to talk to an adolescent about social studies. As Maggie candidly expressed in her post-project formal reflection:

> I have spent the last three years writing for and talking to professors who know all about history. This is one of my first experiences talking to someone in a classroom setting who does not know as much about history. Teaching history isn't like taking a test or writing a paper. Discussion, instruction, and interaction are just as important as knowing about history.

Pre-service teachers valued practical experiences and expressed concerns about their lack of experience in instructional application. They felt that talking to a student about social studies content provided additional experience in practice and formed a window through which they could view students' thinking. Some reflected that the blog project helped them to experience how students thought when they read historical texts. Abby predicted:

> This project will be good for me when I become a teacher because it showed me how students thought when they read different excerpts…It helped me to start relating to the students and being able to converse with them on their level of thinking.

This window to students' thinking also helped pre-service teachers form understandings concerning student ability levels. Some students discussed the reality of their future students' ability levels. For example, Hannah reflected, "Seeing how my buddy wrote and what they were able to pick out and take away from reading has given me a more realistic view of my future students' skill level." Considering student skill level

also led to consideration of the intricacies of scaffolding through online discussion, which were also discussed in pre-service teachers' reflections. As Cindy admitted:

> I think that my greatest personal weakness in this project was my lack of variation in the ways in which I attempted to scaffold my partner. Through asking many questions, which I felt that it was necessary to do in order to help my partner to evaluate the readings, I often overwhelmed my partner.

Cindy faced the challenge of balancing her responses to encourage her buddy to think critically while not inundating her with questions, which was a common sentiment in many reflections.

Suggestions and Implications for Using Blogs for Discussion in Pre-Service Social Studies Teacher Education

In light of the pre-service teachers' responses and reflections concerning online discussion, it may be useful to provide additional opportunities for pre-service teachers to engage in one-on-one discussion with students about content material. The pre-service teachers who noted that they previously worked individually with students for extended amounts of time indicated that it was for general education requirements, not specific to their content area. Their content-related experiences took place in whole-class settings with less focus on individual work with one student. Many times, as is common in practicum and student teaching experiences, their work with students was specific to what their mentor teacher or university courses required, limiting opportunities for in-depth discussion with a student about historical texts.

Online discussion projects may be viable options to allow pre-service teachers to discuss content matter with students. This project used blogs to facilitate discussion, but other free online discussion platforms are readily available. Pre-service teachers and students may become electronic pen-pals with one another to critically discuss texts through the site www.epals.com, (see Groenke, 2008 for a content-focused project example) either in an ansynchronous or synchronous manner. Small-group discussion between pre-service teachers and students through a wiki (e.g. www.wikispaces.com) may also allow close examination of students' thoughts about historical texts while also providing a space for participants to post useful links and documents to extend discussion.

Pre-service teachers' experiences in this project also suggest that instructors committed to disciplinary literacy instruction may want to provide authentic experience for pre-service teachers, and that online discussion platforms offer a feasible, and many times cost-free, method of doing so.

Based on reflections, modeling scaffolding techniques along with practice may be beneficial. As one pre-service teacher described in an exit slip:

> The word "scaffolding" is thrown around in almost all of our courses, but I really don't understand HOW [emphasis in text] to scaffold. I get the concept and I know I'm supposed to do it, but I don't know what it looks like or how to go about it. Talking to my blog buddy helps me practice scaffolding, and even if I'm not doing it completely right at least I get to try it.

Providing authentic practice to scaffold students' critical thought about texts for pre-service teachers is sometimes difficult outside of real classroom settings, but engaging pre-service teachers in online discussions with students or providing pre-service teachers with sample or anonymous online discussion excerpts or instructor-created discussion transcripts that show exemplary scaffolding techniques may be beneficial in scaffolding instruction. Instructors could also assign pre-service teachers to respond to previous posts to allow pre-service teachers to practice scaffolding with support from one another.

Further Questions and Considerations

Questions remain after considering the pre-service teachers' perceptions of disciplinary literacy strategies and the blog project. For pre-service teachers who have had little experience with disciplinary literacy, providing them with explicit instructional strategies may be useful, but how do we begin to reshape pre-service teachers' ideas about the role of disciplinary literacy in social studies and what this type of instruction looks like as a seamless part of a social studies classroom? One possible suggestion may be to begin disciplinary literacy instruction earlier in pre-service teacher education. However, considering methods courses are usually required in the latter portion of education program requirements, a stronger suggestion, mentioned previously, may be to incorporate disciplinary literacy in social studies methods courses and bridge collaboration between literacy and content departments. A next step for this research could be to study the implications of pre-service teachers collaborating with students who have average to lower-than-average reading abilities. Another research question would be to see if disciplinary literacy instruction could be effective at the high school level. Indeed, there are questions to be considered concerning integration of disciplinary literacy instruction in teacher education. However, integrated and collaborative approaches to providing disciplinary literacy instruction in pre-service teacher education, such as the project described here, may be a promising step.

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Journal of School Connections
Fall 2012, Vol. 4, No. 1, pp. 53-80

Creating Podcasts: 21st Century Literacy Tools for Secondary Teacher Candidates

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Use of technology may support a shift in the dynamic of education from lecturer-centered to learner-centered. Podcasting is a recent technological innovation that combines the Internet with MP3 files downloadable to an iPod or personal computer. Educational uses of podcasting have primarily featured lectures by professors or other experts. In this self-study, two professors in a teacher preparation program examined the impact of requiring secondary teacher candidates to create audio podcasts in two content-area literacy courses. Podcasts featured a literacy strategy designed to provide wider access to teacher candidates' content areas for instruction in their school placements. The multi-method study found that participants valued the literacy strategies for their teaching assignments, in part, due to the creation of audio podcasts. In addition, prospective teachers developed a more positive attitude toward content area reading and writing, and embraced podcasting as a technology they might use in their teaching to deepen middle/high school student engagement and learning in the content area.

Secondary educational reform has garnered great attention in the last few years because achievement in American schools lags behind that of other countries (e.g Adams & Wu, 2002; Graham & Perin, 2007). Part of the discussion has been over the purported failure of content area teachers at middle and high school levels to provide multiple opportunities using new technologies for an increasingly diverse student body to engage in deep content learning, and to prepare students for college and the world of work (Conley, 2005; Hart, 2005). It has been argued that secondary teachers

need to improve their teaching by decreasing lectures and teacher-centered practices while deepening student engagement through participation in the specific content (e.g., history, mathematics, science, etc.). Zwiers (2008) argues that all secondary teachers, regardless of disciplinary area, need to develop their students' academic language. At the same time, we are in the midst of such rapid technological change that we must also prepare "tech savvy" teachers who are flexible risk takers ready to challenge their K-12 students by engaging in 21st century pedagogy (AACTE, 2010).

In order to explore the junction of new literacies made possible by technology and the need for content area teachers to more fully embrace literacy strategies and technology as integral tools of their teaching, two literacy teacher educators conducted a multi-methods study in two sections of a content area literacy course at a large public university in the western U.S. The researchers wanted to know whether multimedia use, in this case audio podcasts, created by the teacher candidates, would change candidates' attitudes toward using technology inspired literacy strategies in their middle/high school teaching, how teacher candidates would regard the technology of podcasting in their teaching (and learning), and whether being the author of a podcast would add to their self-efficacy in their own learning.

Podcasts are defined as, "pre-recorded audio programs that are posted to a website and made available for download so people can listen to them on personal computers or mobile devices" (Entrepreneur, 2010, n.p.). Audio podcasting is relatively new, but technologically simple. For example, Apple's iTunes University is widespread, if almost entirely didactic. While the technology we used is not complex, in our experience, it is rare in teacher preparation to have educational technologies cast as part of the methods classes required for teacher certification.

Theoretical Perspectives and Literature Review

Researchers use theories as explanations for why we expect something will happen (a hypothesis) as well as why we believe something did happen (discussion) in our studies (Tracey & Morrow, 2006). The researchers utilized multiple theoretical lenses in this research, although the overarching theory is rooted in constructivism, a theory of learning in which the active construction of knowledge by individuals is ongoing and constant based upon the integration of new knowledge with existing knowledge (Tracey & Morrow, 2006).

The researchers also used a constructivist model known as Technological Pedagogical and Content Knowledge (TPACK) (Mishra & Koehler, 2006) to situate the study. (see Figure 1). In working with secondary teacher candidates, we sought a model that would assist

them in connecting newly acquired technical pedagogy to their existing content knowledge and application of technological tools. TPACK helps to integrate these areas (technological knowledge, content knowledge, and pedagogical knowledge) when planning for teaching. In addition, we sought to broaden secondary content teacher candidates' conceptions about the essential nature of literacy learning in various content areas.

The Role of Literacy in Disciplinary Teaching

Middle and high school teachers work with adolescents and the realities of adolescent literacy learning, a complex and multifaceted topic (e.g., Ruddell, 2008; Zwiers, 2008). Adolescents often have acquired useful levels of literacy skills, but are faced with learning the concepts and vocabulary of the various disciplinary areas in secondary and post-secondary schooling. At the heart of this is the application of literacy processes in more complex and authentic ways (e.g., Marzano, 2004; Moje, Young, Readence, & Moore, 2000). Thus, secondary teacher candidates should become immersed in the literacy needs of adolescent learners as they consider the teaching of their disciplinary content, but they are not always aware of the complementary nature of disciplinary learning and literacy processes. In the state where we teach, only one "content literacy" course is required for all secondary teacher candidates, regardless of their discipline.

Literacy is essential for effective and meaningful learning in all disciplinary areas (Moje, 2008). Graham and Hebert (2010) found in their meta-analysis that there are high social costs for poor literacy skills in an age of globalization. In order for adolescent students to engage with content, they must have foundational skills and attitudes that allow them to understand the relevance and importance of active efforts to understand new concepts and ideas. Part of this is dispositional; adolescents must possess or develop an openness to learning. Part of it is experiential, in that students must be involved in and with gradually more complex texts and analyses of texts (Common Core Standards, 2010). Further, each discipline has its own discourse style, lexicon, and method.

Academic language is characterized by the distanced and nuanced discourse style present in all disciplines (Schleppegrell, 2004) and the vocabulary that students know and learn serves as the entry point for learning new concepts in all content areas. For example, when trying to explain why academic language was not necessary in physical education, a teacher candidate in the study stated, "After all, I'm in kinesiology!" Upon encountering a sardonic look from one of the researchers as he used the term "kinesiology," he looked sheepish and muttered "Oh, now I get it."

There are several schemes for identifying academic language. Zwiers refers to words and phrases as "bricks and mortar," meaning bricks are the building blocks of content areas while mortar words, or phrases, form the conceptual connections of the sentence, holding it all together (cf. Grisham, 2009). Beck, McKeown and Kucan (2002) refer to the categories of words as "tiers." Tier I is commonly spoken language. Tier II words are those that cross the content areas such as "define, analyze, argue." Tier III words are specific to the content area, such as the term "photosynthesis" in science. Coxhead (2000) analyzed academic language and provides a valuable resource for teachers and teacher educators in the Academic Word List. In one study (Wolsey, 2010), students presented with difficult writing tasks that called for synthesis of multiple sources tended to use more precise language as indicated by an increase in use of terms from the Academic Word List.

Although his work emanates from the socio-cultural tradition, Gee (1996), provides insights into the role of school as a place of learning for candidates in a teacher preparation program, for those same candidates who would work in K-12 classrooms, and for the students with whom they would work. Gee asserts that schools assist students in learning to negotiate secondary discourses that are valued by society. Of particular interest to the researchers is the idea of "expertise" and how the individual acquires such expertise in a social setting such as that of school. Communities of practice (Wenger, 1998, 2003) may provide helpful resources on which teacher candidates can draw when confronted with difficult tasks that require acquisition of new skills and adapting to unfamiliar tasks.

Several ways for educators to address the need for literacy skills (Graham & Hebert, 2010) suggest that writing can enhance reading in at least three ways. First, as a functional activity, writing can be combined with reading to learn new ideas in text—or enhance learning in the disciplines. Second, reading and writing are connected in that both draw upon the individual's knowledge and cognitive processes—therefore improving writing proficiency should improve reading. Finally, reading and writing are essential communication activities; writers may learn about reading as they create their own texts. In the case of "writing," we suggest that composing is not wholly a writing task; that is, composing is not always about pencil on paper or fingers on a keyboard. With today's evolving technologies, composing involves shared tools such as Google Docs and Voicethread, inclusion of multimedia texts such as audio and video, and the prevalence of graphics and color in composition (Grisham & Smetana, 2011). However formulated, composition is one of the integral pathways to learning that today's secondary students must master before

entering college or the world of work. Evolving technologies present new possibilities in composing content. While teachers and students typically conceptualize composing processes in terms of words on a page, we argue that composition also involves the manipulation of new or complex ideas that are also possible with multimedia tools including the audio file known popularly as a podcast.

Podcasts, similar to other effective composing tasks, may call for teacher candidates to transform knowledge (Wolsey & Grisham, 2012) and turn it toward more complex and specific purposes that meet their needs as future teachers. The composing activities of planning, reflecting, and revising are evident in many podcasts, including those composed for the academic purposes of teacher preparation programs.

Technology and New Literacies

A third important aspect of this study comes from technology and "new literacies" (International Reading Association, 2009; New London Group, 1996). Embracing new or multiliteracies requires an expanded definition of literacy that includes practices in all content areas and across a variety of media. We argue that secondary teacher candidates, in particular, must learn to expand their definitions of literacy and come to regard literacy processes as essential to the teaching of content so that education remains relevant to today's students (Grisham & Wolsey, 2006; 2007; Hagood, Stevens, & Reinking, 2002). The inclusion of newer technologies (i.e., podcasts) for this purpose is embedded in the content literacy course.

As students grapple with discipline-specific learning, they must also learn the skills and dispositions necessary to navigate 21st century information sources. Because the technologies change rapidly, these skills and dispositions must also evolve very quickly (Leu, Kinzer, Coiro, & Cammack, 2004). As a result, the proficiencies one has today may not be as effective next year when the tool has evolved or changed in some substantive way. Teacher candidates in this study, mostly in their twenties, nevertheless tended to feel out-of-touch with the technologies their future students might use. Even as technologies evolve, communities of learners become increasingly important as teacher candidates navigate the digital terrain.

Adoption of new technologies by teachers and subsequently their students is a complex process that is developmental in nature (Straub, 2009). Such factors as perceived utility, access to the necessary tools, a sense of self-efficacy, and organizational constraints (e.g., curricular demands) must be considered, as well. For students to be able to effectively use new technologies in academic settings, teachers must make sound instructional decisions that teach and encourage critical evaluation

skills. Some traditional literacies will make way for new literacies born of emerging technologies. For example, collaborative writing composed on wikis and shared online documents change the nature of the composing task. In addition, students must learn to be educated consumers and critical appliers of information that they encounter in both online and traditional print forms. 21st century skills demand that students be comfortable with collaboration and co-construction of knowledge in an array of structures and formats

Research on Podcasting

Published research on student-created podcasts is rare. Wozniak (2008) reported how secondary teacher candidates responded to podcasts created by experienced content-area teachers on effective implementation of literacy strategies. Putman (2008) focused on creating podcasting with children (see also Putman & Kingsley, 2008). A small percentage of professors in one study (Bull, Tyler, & Eaton, 2007) noted that they wanted students to create podcasts even though this desire was not always translated into assignments. English as a Second Language (ESL) students in another study were asked to create a podcast, but the researchers found that the time spent teaching students to create the podcast could be problematic (Kim, Rueckert, & Hwang, 2008). Dlott (2007) reported children improved their motivation, listening skills, and interpersonal skills through podcasting.

Context and Rationale for the Study

The researchers are teacher educators in universities that focus on educational practice and subscribe to a teacher-scholar model that postulates that much of value in our work may be discovered through small-scale systematic inquiry (Lenski, Wold, & Grisham, 2006). The researchers, who have collaborated extensively over the past decade, have an ongoing interest in intersections of technology and literacy. In our context, technology tends to be taught in a stand-alone course and is not well integrated with instructional practice. In the educational technology course at California State University, East Bay, students learn to create a website, learn Microsoft Office programs, and learn about educational technology and technology standards in education. In addition, they learn to use software for the assessment process required by NCATE and learn to navigate course management systems such as Blackboard®. However, in their "methods" courses (such as the content literacy course), the application of educational technologies is not common. Our goal, then, was the practical application of a technological tool, in this case a podcast,

to teaching. We chose the podcast because it was practical, inexpensive, and something that might prove useful to our teacher candidates in their teaching contexts.

Methods of Inquiry

Researchers used a mixed methodology design featuring two intact classes (N=48) of post-baccalaureate secondary teacher candidates in a teacher preparation program at a public university in the west. Teacher candidates possessed a Bachelor's degree in a given content area and were enrolled in a one-year (four quarters) teacher preparation program. The content literacy course in which they were enrolled is a state-mandated course for all secondary teacher candidates, regardless of major.

Research questions included:

(1) How do secondary education teacher candidates from various content backgrounds perceive the role of literacy (writing, reading, listening, speaking) in the teaching of their specific content area?

(2) How will selecting a literacy strategy that participants feel may assist middle/high school students in their content area and producing a podcast on that strategy influence teacher candidates' attitudes toward the integration of literacy and technology?

(3) How might teacher candidates change their attitudes and self-efficacy about literacy pedagogy as a result of creating the podcast?

Researchers solicited and received consent forms from all students in both classes to participate in the research. Descriptive statistics from surveys and analysis of a substantial body of qualitative data sought to describe teacher candidates' responses to the creating podcasts that incorporated literacy processes into participants' content areas.

Researchers provided opportunities for students to create the podcasts, to discuss the task and possible outcomes with other content area teacher candidates in the same class as part of the process, and to listen and evaluate the podcasts. Using a rubric aligned with the prompt and course outcomes (see Appendix A), researchers evaluated the product (podcasts) to ascertain whether teacher candidates met learning goals.

Each of these three components was essential as teacher candidates worked to transform their understanding of literacy, digital technology, and their own capacity to learn about each of these constructs (Mishra & Koehler, 2006) (see Figure 1). As further detailed, the candidates had knowledge of podcasts, but they were generally unfamiliar with

the hardware and software needed to create them. They had to consider elements of audio production that were new to them in layering music and voice together, while working from a script they created using more traditional, written literacies.

Building on the notion of learning as a social constructivist act, students needed the opportunity to note their own strengths in applying traditional literacies in grades 6 through 12 settings. However, they also needed the opportunity to apply 21st century learning to the demands of the task; e.g., they needed a learning task that put them in the position of working with technologies with which they were unfamiliar, coupled with the opportunity to work with colleagues to fill in knowledge gaps (Stewart, 1997).

Similarly, candidates learned about the literacy strategies as they listened to each of the podcasts. In their evaluations of their peers' work, they were also required to think about and to apply what they had come to know about literacy strategies and digital technologies.

Data Sources

Data collected included pre-course and post-course surveys about literacy, content pedagogy, attitudes toward literacy in the content area, beliefs about the use of technology in K-12 settings, and knowledge about the teacher candidates. Additional data included the collected corpus of podcasts (including audio files and written transcripts), two focus group interviews of randomly selected students from both sections of the course (content area reading and writing), discussion board transcripts, and other writings collected on the topic during the class. For the podcast task, teacher candidates were directed to compose the podcast in one of two ways, either to record and then write a transcript or to write a script and then record the podcast. Written directions were provided to the teacher candidates and may be found in Appendix A. Ten sample podcasts are available for the reader at https://sites.google.com/site/audiopodcasts/. One sample podcast script may be seen in Appendix E.

Data Analysis

Data analysis included a compilation of descriptive statistics from the questionnaires and comparisons of pre/post constructed responses to questions on selected subjects to help answer the research questions. The researchers also assembled a table of podcasts and literacy strategies (see Appendix D). Qualitative data analysis consisted of open coding (Strauss & Corbin, 1990) of participants' responses to the surveys, the commentary contained in the podcasts, written responses to questions posed during class, and the audio files of interviews with focus group

participants. Each researcher coded the qualitative data separately and then both researchers compared and collapsed themes for further validity (Mills, 2011). For example, focus group interviews of approximately one hour were conducted (and recorded) by Wolsey and another colleague, neither of whom was the course instructor (Grisham). Each researcher listened to the two audio-recorded interview tapes several times, making notes and coding the participant responses. The researchers then compared their codes and found them to be virtually the same. All the findings were derived through this collaborative analysis process and subsequent triangulation across the data sources (Mills, 2011).

Several themes emerged from the data: (a) apprehension about using technology in the classroom, (b) a more complex view of literacy as a mediator in participants' content area learning, (c) establishment of collegial relationships in "problem-solving" aspects of the assignment, and (d) a broader view of the teaching-learning relationship for participants' pedagogy.

Findings

The findings from this study are presented by the initial research questions, followed by two related findings that were unanticipated but arose from the data set.

How Do Teacher Candidates from Various Content Backgrounds Perceive the Role of Literacy in the Teaching of their Specific Content Area?

In response to the first research question, how teacher candidates from various content backgrounds might perceive the role of literacy in the teaching of their specific content area, the data indicate that secondary teacher candidates initially struggled with the concept of literacy processes as central to content pedagogy. Pre-course questionnaires, chapter reflections, and discussion boards evidenced a slow evolution in attitudes toward literacy strategies as a scaffold for K-12 student learning of content. For example, one teacher candidate wrote, "Students in my classes don't try hard enough to learn science. They are lazy." Although not all teacher candidates were as "content-centric" as this student, many of them implied that K-12 students were unprepared and unmotivated to learn the content. Math and music teachers resisted the concept that literacy should matter to their teaching, since they viewed their content as teaching symbols rather than words. However, during the middle of the study, one math teacher candidate reflected that he wished he had learned more about mathematics vocabulary and that he was considering how he might address that in his teaching.

In focus group interviews conducted after classes were over, several teacher candidates expressed appreciation for literacy strategies that their colleagues had adapted to different disciplines in the podcasts. One music teacher indicated in the focus group interview that a number of podcast uses had occurred to her, including recording and podcasting student recitals for parents, podcasting student performances for evaluation by classmates, podcasting exemplars for students to listen to independently, and so on.

Interview data from two focus groups supported the finding that podcasts on relevant literacy strategies for each content area strengthened the participants' ideas that literacy strategies could be effectively used to help K-12 students understand disciplinary learning. Although Focus Group 1 participants were more positive about the experience of making a podcast than Focus Group 2 participants, both groups indicated that despite the frustrations of wrestling with the technology, they felt good about having done the podcasts; the majority felt they would use podcasts in their own classrooms. Most of the uses to which they thought they might put podcasting were to engage K-12 students more actively and creatively in their own learning. Only 2 of the 14 mentioned teacher uses (such as recording lectures for occasions when they had substitute teachers). Twelve of 14 suggested generative uses of podcasting, such as using them for student performances in music, or for student team projects in social studies. One creative use was to get students to learn "boring facts" in a more engaging and creative manner. Other suggestions were to have students report on a figure such as Charles Darwin in order to build background knowledge for a unit in science.

Based on other participant writings (discussion board, other written products, and face-to-face discussions), researchers note that there was a meaningful shift in how literacy was viewed as a mediator of content learning. For example, one teacher candidate in math wrote: "Teaching involves skills such as motivating, guiding, modeling, and scaffolding." These are complex behaviors that must be learned and practiced.

How Will Selecting a Literacy Strategy that Participants Feel May Assist Middle/High School Students in their Content Area, and Producing a Podcast on that Strategy, Influence Teacher Candidates' Attitudes Toward Literacy and Technology?

In response to the second research question, how teacher candidates' selection of a literacy strategy to assist middle/high school students in their disciplinary area and producing a podcast might influence teacher candidates'

attitudes toward literacy and technology, we found that there were several productive ideas that participants took away from the experience.

Appendices B through D show how teacher candidates were distributed across content areas and the strategies they featured in their self-created podcasts. When the researchers combined the categories of strategies featured in Appendix D, six overlapping categories became apparent.

First, teacher candidates most frequently selected strategies designed to improve comprehension and critical thinking. The next most often selected were vocabulary and academic language strategies. Graphic organizers, collaborative learning strategies, and writing activities (such as journals) also could be employed to promote critical thinking, comprehension, and acquisition of academic language. A few strategies were either general in nature (scaffolding) or could be used in a variety of ways (e.g., Webquest). Teacher candidates' selection of comprehension and critical thinking strategies suggests that, by the end of the course, they were considering their future students' need for access to content area learning through literacy as an important element of their teaching. Several teacher candidates also mentioned that sharing podcasts with each other strengthened their understanding of how literacy pedagogy crossed content areas.

In using a new technological tool (e.g., a podcast), participants learned to integrate new and traditional literacies. Surveys showed that none had ever made a podcast before. More importantly, teacher candidates came to understand that helping secondary students with these literacies did not undermine their time or capacity to teach content. Indeed, many of the teacher candidates expressed awareness that literacy learning enhanced how students in secondary schools might learn content more effectively. The following comments from a late-in-the-course, in-class writing task document some of the changes that occurred between the pre- and post-course surveys:

> "I actually learned the importance [value] of learning by teaching. I understood my content better after explaining it to the members of my group. I will use this knowledge to have students learn by teaching."

> "There are many ways to teach reading along with content, many ways to assess student comprehension of the content, and many ways to evaluate texts used to teach the content."

> "I have begun to get a basic general concept of the need to recognize challenge in [struggling] readers and what steps can be taken to ensure that their level of learning is the same as a non-challenged reader."

How Might Teacher Candidates Change their Attitudes and Self-efficacy about Literacy Pedagogy as a Result of Creating the Podcast?

The third research question addressed the teacher candidates' attitudes and feelings of self-efficacy as a result of the podcast assignment. To the surprise of the researchers, only 3 of 48 participating teacher candidates in the course had prior experience with podcasting, but even this was limited to listening to or downloading podcasts, not creating them. Many students were intimidated by the idea of creating a podcast until they tried it. Despite a number of frustrations with a new process, different software applications, and varying platforms, every student was successful at creating an audio podcast in MP3 format.

After their success, and as they shared their podcasts with their colleagues, they focused less on the difficulty of the process of creating a podcast and began speculating on the educational uses of the medium. Some teacher candidates began thinking of ways middle and high school students might use podcasts as a means of critiquing books or explaining science experiment results. Focus group interviews indicated that teacher candidates envisioned the use of podcasts in some very traditional ways, such as recording lectures for when students might be absent. However, several teacher candidates expressed the view that their K-12 students would find podcasting useful and engaging to demonstrate their learning. Some of the suggested uses involved student created podcasts for music and foreign language performances, building background knowledge, and providing oral reports in a less intimidating way.

Most participants were experienced technology users who accomplished the podcast with relative ease, but there were several outliers for whom this task was intimidating and for whom additional support was required. Focus group interviews reflected the differences in teacher candidate expertise with technology and the frustration of working with varying technological platforms and iterations of software. It became readily apparent that teacher candidates productively collaborated to assist each other with the technology demands and with creative and participatory roles required to accomplish this complex task. For example, podcasts simulated radio talk shows where people called in to get answers to their questions and colleagues provided the different voices. Some teacher candidates involved their families. One science educator had her own children participate in the podcast to provide a "student voice."

Because they were successful at using creative approaches for the podcast assignments, teacher candidates appeared to recognize that their secondary students might also use the technology in similarly creative ways.

Participants also enlarged their notion of how technology should be used in K-12 classrooms. The following quotes are examples of teacher candidates' reflections on the podcasting assignment.

> "I liked this assignment. Now I can do it again without having to learn the ropes."

> "At first it seemed daunting, but now I think it was a productive way to end the class."

> "It was a good exercise in technology. I use podcasts because I do not use TV, so creating one was fun."

Not all students found the assignment to be meaningful. For example, there were several students who resisted and/or resented the assignment. One student from Class 2 openly expressed his dislike of the assignment, but wound up assisting a colleague who was challenged by the technology used. A number of students felt that the process should be better scaffolded, but the overwhelming majority of students expressed appreciation for the experience they garnered from doing the assignment. After the course had ended, one science student came to one of the researchers to express how positively the assignment had affected her thinking about science and teaching.

When we triangulated the data from podcasts (both script and audiocasts), interview data, and surveys, we found that teacher candidates gained confidence in their capacity to use technology for educational purposes. Students wrote and spoke of their intent to use podcasting in their teaching. For example, one Spanish teacher stated, "I will have podcast group assignments for authentic assessments of Spanish." An English teacher affirmed, "Great exposure to technology! I plan to use podcast technology and recording more often in my teaching."

Data from the post-course survey showed that 90% of the teacher candidates felt positively about the technology use in the course, and felt they had learned something useful from the podcasting assignment. These data are confirmed by the scripts and podcasts themselves and from focus group interviews. A sample script from a math educator is provided in Appendix 5 on the companion website and other podcasts also reside there. Table 1 below reflects the post course survey questions on technology and podcasting during the course.

Table 1: Post-course Survey on Usefulness of Podcasting.

Question	Class 1 (T) N=30	Class 2 (Th) N=17	All Classes Percentage N-47
1. My experiences with technology were: C= Comfortable CP=Challenging/Productive CD=Challenging/Too Difficult (NR=No Response)	C=10 CP=18 CD=2	C =4 CP=10 CD=1 E=1 NR=1	C=30% CP=60% CD=6% NR=4% Note: One student felt the task was too easy.
2. The podcast assignment was a good use of technology. Y=Yes N=No Y/N=Yes and No NR=No response	Y=25 N=4 Y/N=1	Y=25 N=4 Y/N=1 Y=13 N=1 Y/N=1 NR=1	Y=81% N=11% Y/N=4% NR=4%

The "Fear Factor"

An unanticipated finding of the study emerged from the data, which we have termed "the fear factor" (cf, Nail & Townsend, 2011). Although our teacher candidates had completed a university course in educational technology and were mostly young, fairly sophisticated technology users, most were doubtful about using new technology in their middle and high school classrooms (see Table 2). On the pre-course questionnaire, one teacher candidate wrote, "What if I can't make the technology work? I don't want the students to lose respect for me as a teacher if I try to use technology, and it doesn't work."

Table 2. Teacher Candidate Age Distribution

Class	Age 21-26/%	Age 27-32%	Age 33+/%
Class 1 (N=31)	18 (58%)	6 (19%)	7 (23%)
Class 2 (N-17)	5 (29%)	5 (29%)	7 (41%)
Combined (N=48)	23 (48%)	11 (23%)	14 (29%)

Note: One student (age 33+) dropped from Class 1, so final N was 47 students.

Table 3 indicates that at the beginning of the courses, students in both sections expressed their "fear factor" about the use of technology in their teaching. This was so even though 48 percent of the teacher candidates who responded to the question about their age were in the 21 to 26 age bracket. These fears included concern that middle and high school students would show more knowledge and sophistication with technology than their teachers, and also that teachers would have something go wrong with their use of technology and "look stupid" in front of their students. After the course and with the completion of the podcasting assignment, these fears seemed to lessen.

Table 3. The "Fear" Factor in Technology and Teaching.

Group	Pre-Course Fear/Other	Post-Course Fear/Other	% Change
Class 1	25/5 (83%)	17/13 (56%)	(-27%)
Class 2	15/2 (88%)	6/11 (35%)	(-53%)

Collaboration

Another largely unanticipated but important finding from the focus group interviews was the role that collaboration played in the successful making of the podcasts. Although the professor provided detailed instructions for the project, there were no examples available. One student said he had "fun" with the assignment because he liked technology. One student was admittedly "very weak" and felt totally unequipped to do the project. Most students fell between these two poles. However, the teacher candidates were not as adept at technology use as the researchers had initially thought. In fact, teacher candidates expressed frustration with the actual recording process. What made the difference between failure and success was the degree of collaboration between participants. They helped each other extensively, from the recording to the posting, to making scripts more interesting, and adding creative touches, such as music and sound effects. Collegial action around new learning provides the teacher with meaningful professional development in a learning community (Lieberman & Mace, 2009).

Finally, the data suggested that the candidates wouldn't have chosen to do the podcast assignment themselves because it was a novel assignment that initially appeared intimidating. Some also wanted the process to be better scaffolded and more transparent, in fact, a few participants would have liked the instructor to supervise them directly as they did the work, yet they appeared to learn effectively through collaboration with each other and through the process of "wrestling" with the technology.

Discussion and Implications

A fairly recent editorial describes the "wicked" problem of teaching and learning with technology (Borko, Whitcomb, & Liston, 2009); "The rapid growth of digital technologies, coupled with the complexities of classroom life, increases both the transformative power and the difficulty of problems associated with incorporating innovative technologies in teaching and teacher education" (p. 3). The existence and proliferation of new technologies provide teacher educators with both an opportunity and a challenge in terms of preparing "tech-savvy" teachers who will effectively address the learning needs of their K-12 students (see also, AACTE, 2010). We considered the constraints and affordances of technology as we planned this research project. What was possible under the circumstance in which we taught? What technological tools would be available to us—and to our teacher candidates when they graduated and became teachers of record in their own classrooms? What strategies and tools would influence our teacher candidates toward sapient technology use? What process might we use that would assist our teacher candidates to understand the importance of literacy as a gatekeeper for K-12 student learning?

We believe that the type of technology we employed isn't the main consideration. We argue that the difference lies along a continuum where a teacher (or a teacher educator) may believe or decide that some tasks require students to be involved in decisions and activities that affect their own learning. This, in turn, rests upon teacher dispositions toward student-centered learning and the skill with which the teacher applies his or her knowledge of content, selects teaching strategies that are appropriate to students and contexts, and then considers the proper tools for learning.

In terms of communities of practice (Gee, 1996; Wenger, 1998), teacher candidates are apprentices who are learning the discourse of school and establishing their professional identities. We argue that podcasts and multimodal compositions are a promising innovation that may assist in accomplishing that. If teacher candidates include composing with new technology in their content area classrooms, our study suggests they will better meet the needs of adolescent learners for legitimate projects to learn academic language and literacy processes essential to their content areas.

Moreover, if teacher preparation programs include opportunities for students to solve technical problems they encounter as the technology evolves and changes, the better prepared the candidates will be to serve the grades 6-12 students with whom they will work in a regular teaching assignment. Teacher educators facilitate that willingness to learn along with teacher candidates modeling the behavior of side-by-side learning (Grisham & Wolsey, 2006, 2007; Wolsey & Grisham, 2012).

While the technical proficiency teacher candidates bring with them to

the university varies, there is no guarantee that teacher candidates will be able to transfer their proficiency with technology for personal/social uses to their roles as teachers. Teacher preparation programs can prepare teacher candidates to use new literacies that may be applied to secondary classrooms (AACTE, 2010). As we found in this study, even younger teacher candidates may be fearful that their own students will be more proficient than they are as the technologies change and evolve. Similarly, teacher candidates must develop dispositions (such as more positive attitudes, increased self-efficacy) that promote problem solution when confronted with difficult technological challenges. In many ways, the teacher candidates in the present study collaborated with their colleagues from inside and outside the class to complete the task. What some teacher candidates did not perceive at first was that consulting others in order to work with the technology is a 21st century skill they must purposefully employ.

In the present study, teacher candidates found that they could improve their disciplinary teaching through increased attention to both traditional and new literacies. Further, by focusing their own podcast creations on their content areas, all of them learned to integrate technology, literacy learning strategies, and content. Just as important, teacher candidates also learned that content learning and literacy learning need not be mutually exclusive activities. In constructing podcasts that incorporated their content areas, traditional literacies, and new literacies, teacher candidates began to think differently about how to effectively teach disciplinary knowledge to students. Teacher candidates had choices in what to include in their podcasts, composed and recorded podcasts in creative and individual ways, grappled with the inclusion of literacy strategies around a new technological tool, and learned to collaborate productively with their colleagues. These are all important elements for teachers to learn and offer in kind to their secondary students.

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Appendix A. Directions for Podcast Assignment.

Literacy Strategy: Based upon the requirements of your subject area, choose a reading/literacy strategy from your textbook. Read two additional published scholarly articles that indicate the usefulness of the strategy for students in your content area.

Write a Script: Your podcast script should sound much like a radio broadcast when recorded and should include the following components:

- Name, the date of your broadcast, content area, and the school level (middle, high school) where you would use the strategy;
- Your concern about students being able to read complex text in your subject area; why they may have a problem (use the textbooks in this course to support your concern);
- The textbook from which you took an appropriate strategy to support the students' reading of text in your content area;
- The strategy and your rationale for choosing it (what will it do to support student learning in your content area and how will it address the need you identified);
- Identify sources, authors, dates published and then summarize the additional research that supports the use of the strategy. Connect this back to the reading problem identified; and
- A brief explanation of how you will introduce this strategy in your own class.

Record the Podcast: Using an MP3 recording device, record your podcast. The podcast should sound much like a radio broadcast when recorded. Be sure to practice so that it doesn't seem like you are merely reading the script you have written.

Post your script: After you have emailed the audio file to the Instructor, go to the Blackboard assignment (in the Course Materials section of this class) and post your podcast and written script there.

Appendix B. Podcasts by Content Area and Strategy (N=48)

Class 1 (N=28)	Content Area	Literacy Strategy	Class 2 (N=20)	Content Area	Literacy Strategy
Student 1	Physical Education	Sheltered Instruction *	Student 1	Social Studies	TPRC
2	History	VSS Vocabulary Self-Collection Strategy	2	VAPA (Visual & Performing Arts)	Word Wall (Brick/Mortar)
3	Art	KWL	3	Spanish (World Languages)	GMA
4	Music	CTRA Creative Reading Thinking Activity	4	Mathematics	Journal Writing
5	Physics	Think Pair Share	5	Social Studies	KWL
6	Physics	CSSR	6	Physical Education	Journaling
7	History	REAP	7	History/Social Science	ReQuest
8	Music	Scaffolding	8	Mathematics	Word Wall (Brick/Mortar)
9	English	CSSR	9	Social Science	KWLPlus
10	Music	Direct teaching of Vocabulary	10	English	Interview Grids/Mixers
11	Science	Preteaching vocabulary	11	French (World Languages)	DR-TA
12	History/Social Science	Brick/Mortar (Vocabulary)	12	Mathematics	WebQuest
13	Mathematics	CSSR	13	VAPA	RAFT

Class 1 (N=28)	Content Area	Literacy Strategy	Class 2 (N=20)	Content Area	Literacy Strategy
14	English	Semantic Mapping	14	Social Science	TPRC
15	Mathematics	VSS	15	Mathematics	Journal Writing
16	Physical Education	CTRA	16	Chemistry	CORI (Projects/Inquiry)
17	Science	Scaffolding	17	Science	Jigsaw
18	Science	TPRC, GMA, VSS lesson plan	18	Science	Jigsaw
19	French (World Languages)	CSSR	19	Social Science	DR-TA
20	Biology	VSS	20	Social Science	DR-TA
21	Social Science	Academic Language/ Questioning			
22	Music	Direct teaching of Vocabulary			
23	Science	Group Mapping Activity			
24	History	Think Pair Share			
25	Science	VSS			
26	English	RAFT			
27	Social Science	KWL			
28	Mathmatics	Jigsaw			

* Strategies were selected by students from the Ruddell (2008) or Zwiers (2008) texts.

Appendix C: Teacher Candidates by Content Area (N=48)

Content Area	Number of Teacher Candidates
Social Sciences	13
Physical Education	3
Art	3
Music	4
Science	11
English	4
Mathematics	7
World Languages	3

Appendix D: Cumulative Literacy Strategies Used in Podcasts N=35

Strategies Used	#Times	Strategies Used	#Times
CSSR	4	Jigsaw	
VSS Vocabulary Self-Collection Strategy	4	Preteaching Vocabulary	
KWL or KWLPlus	4	Brick/Mortar (Vocabulary)	
Journal Writing	3	Semantic Mapping	
TPRC	3	Academic Language/ Questioning	
DR-TA	3	Jigsaw	
Think Pair Share	2	ReQuest	
CTRA Creative Reading Thinking Activity	2	Interview Grids/Mixers	
Group Mapping Activity (GMA)	2	REAP	
Scaffolding	2	WebQuest	
Direct teaching of Vocabulary	2	CORI (Projects/Inquiry)	
RAFT	2	Sheltered Instruction	
Word Wall (Brick/ Mortar)	2	Jigsaw	

Appendix E. Unedited Podcast Script for Mathematics Teacher Candidate

You have just tuned into [Student's Name] Podcast for Thursday, July 31st, 2008. On this podcast, I'll be talking about a strategy that I would consider using in my future high school mathematics class to teach my students how to read a mathematics textbook.

Now, I understand what you may be thinking. "Why would you want to teach students how to read in a math course?" or "What does reading and language development have to do with numbers?" or "Why did [student's] voice suddenly get very annoying?" To address those first two questions, I invite you to think back to your wonderful times in a mathematics course when you were a high-schooler. Do you remember how every new section in the chapter would involve a number of **bolded** new terms, and they were generally built on previous chapters' **bolded** terms? I am a mathematics major, and I can attest that learning these new terms was not a walk in the park. My main concern about my future students is that they will pick up the textbook, read through the examples, follow it like a cookbook when doing the homework, and then close the book. They would either not find a point to learning the new terms, or find it to be difficult to remember. But I suppose there isn't a great harm in that. I mean, when would you really use the words "numerator" and "denominator" in any other context than mathematics, or perhaps the floweriest of the flowery essays? It would be so much more convenient to say, "You gotta make the bottom numbers the same on each number thingy, then times that number to make it the same number to the top number for both thingies before you can add the top numbers, but you gotta keep the bottom number the same." Archimedes would roll over and over in his grave hearing this obscenely basic monologue describing adding fractions. I would not want my students to be viewed by society as being ignorant to the long history of mathematics, nor sound so ineloquent as to destroy the meaning of their statements because they are judged by how they say, as opposed to what they say.

So as a preventive measure, I've enlisted the help of Martha Rapp Ruddell. Okay, so I just perused her book, but I did see a literacy strategy to help students with the learning of those academic mathematical terms. Ruddell discussed an instructional procedure called CSSR. No, this is not the Soviet Union reuniting for another world tour. CSSR stands for: Context, Structure, Sound, Reference. This is a system of vocabulary research that can help students address the issue of not learning the terms because they don't understand how to figure out the definition of the new term. It works in 4 steps with 3 of them being conditional steps. When a student encounters a new term, say for example, "polynomials," the student

would read the entire sentence and guess the meaning of the CONTEXT in which it was used. If it makes sense, then great, they move on. If not, then they move to step 2, where they analyze the STRUCTURE of the actual word. In this case, if the student understands the prefix "poly" as meaning "many," then they are already halfway towards understanding the word. If it still does not make sense to them while putting that into the context, then they try step 3 and SOUND it out and try to associate that word with other words that they have heard before. Step 4 is the most disruptive, yet surest form of definition, which is to look in a REFERENCE such as the glossary, dictionary, or other people. I can appreciate this system because it is versatile enough to be used in any subject area that has subject-specific terms, which is, umm…all of them, and this self-directed learning will help with retention as they cycle through step after step of repeating the word to themselves with different perspectives on it.

And to be sure that Ruddell wasn't just full of it, Jane Harmon also asserted it in her article, "Constructing word meanings: Strategies and perceptions of four middle school learners," that the most proficient reader in her study utilized a system similar to this while encountering new terminology. She published her findings in 1998 in the *Journal of Literacy Research*. Other supporters of developing in-depth word knowledge, which is promoted by the SS and R parts of CSSR, are E. Sutton Flynt and William G. Brozo. Their article, "Developing Academic Language: Got Words?" was published in the 2008 issue of *The Reading Teacher*. Both of these articles support what CSSR is trying to accomplish with student readers.

Lastly, how we do educate the students of this system? As Ruddell plainly spells it out, telling the students clearly and drawing a schematic to illustrate the procedure, will help cement this system for the visual and auditory learners. After using this system a few times, a quick assessment by discussion would ultimately decide if the system is effective for my students.

And that wraps up this podcast. Thank you for spending time listening to me yap, and good luck to the Future Teachers of America. Team 06!

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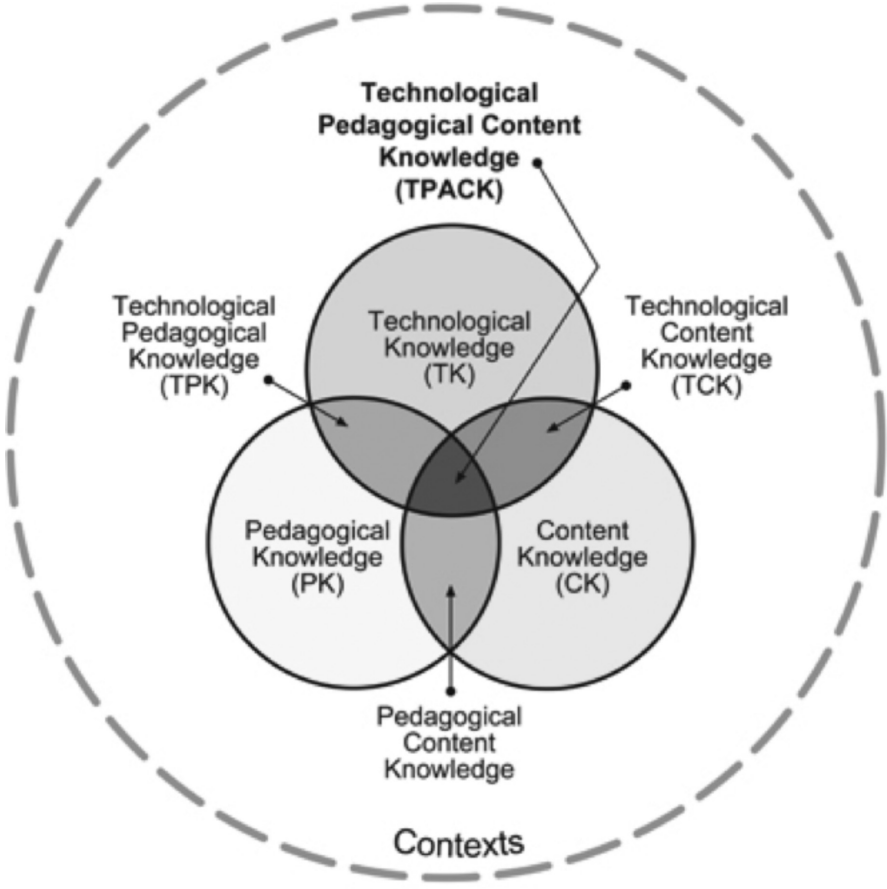
Figure 1. TPACK (Mishra & Koehler, 2006)



Journal of School Connections
Fall 2012, Vol. 4, No. 1, pp. 81-95

Using Technology to Motivate Reluctant Writers in a Third Grade Classroom

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The purpose of this study was to explore how using technology in a third grade classroom was related to students' motivation to write. Six reluctant writers were introduced to a class wiki and also taught how to create word clouds using Wordle. The children were given the opportunity to continue responding to their reading using their paper journal, the class wiki, or by creating a Wordle. The results demonstrated that the use of technology in the writing process was associated with increased student motivation. The children's written responses were longer and they responded more often when using technology than when writing with pencil and paper in their response journals. The children also reported that they enjoyed using technology.

"Last night M showed me the Wiki for the reading response and I ABSOLUTELY LOVE IT!!! M has been trying to finish his book because he cannot wait to go and do his own page and loved reading all the comments from other pages. What a Great Idea!!!" (email from parent, November 2011)

"Thank you for your patience with J this year. He is expressing more of an interest in school, especially after the introduction of the Wiki and Wordle." (thank you card from parent, November 2011)

"I just wanted to tell you that we are having so much fun with the Wiki reader's response. Great idea. I just have to help with some of the typing but I'm sure he will pick it up in no time. I think it's especially fun when the children respond to each other. Such nice children!" (eboard communication from parent, November 2011)

"Are we going to use the computer for writing today?" "Can we do another Wordle?" "I love our class Wiki!" These enthusiastic questions and responses began on a daily basis after a classroom wiki was introduced to this third grade class. The wiki allowed students to electronically complete their required reading responses. Students in the class could also view and respond to each others' comments. Postings from all were encouraged.

Formally responding to reading via writing is a weekly activity for my third graders. The children are required to read for a minimum of twenty minutes each night and must respond to one reading response question by the end of the week. The requirement is to write a minimum of three sentences, but they are encouraged to write five or more detailed sentences about a book they have read, or are in the process of reading. Prior to the beginning of this project, I enthusiastically compiled a list of response questions and neatly glued them to the front inside cover of the newly purchased reading response journals. At the time, I was very excited and eager to read and respond to each student's entry. Apparently, I was one of the only people in the class that was excited. For the most part, the reading responses left a lot to be desired. Except for a few, they were short and not very interesting. It seemed that most of my students were not excited about responding to their reading, and were just doing the minimum requirements to get by, or in some cases not doing the assignment at all. It was obvious to me that this task that I thought would be so worthwhile was not something to which these third graders looked forward or put into a lot of time and effort. I began thinking about how I could motivate my third-grade students to respond to literature in a more meaningful way. At about the same time, my co-teacher had received a grant giving us six mini laptops that we used for math practice. The children were always so excited when we took out the laptops for math practice that I thought perhaps we could use them to motivate the children to write. I then had to think about how best to use the technology for reading response activities. After much research and reflection, I decided to begin a classroom wiki.

Research on Motivation and the Use of Technology

Using technology to motivate students is becoming more and more common as evidenced by the many articles addressing this issue (e.g. Heafner, 2004; Karchmer, 2001; Morgan & Smith, 2008; Street, 2005; Wallwork & Campbell, 2011).

Motivating reluctant writers is the responsibility of the classroom teacher. Research shows that there are many reasons why a child may not be motivated to write. Reluctant writers may feel isolated and turned off

from school because of a lack of self confidence, family problems, cultural differences, or economic differences. Getting children involved in projects that have them connect school with their communities can engage the most reluctant of learners (Landsman, Moore, & Simmons, 2008). Motivation is linked to identity or a feeling of membership in a community of learners (Street, 2005). Young students need opportunities to learn language through interacting with others (Vygotsky, 1986). Using technology can promote social interaction, peer teaching, and collaboration (Clements & Natusi, 1993). When technology in literacy instruction is used responsibly in the classroom, it can foster growth and motivation for all students (Wallwork & Campbell, 2011). Heafner (2004) writes that students who normally were disengaged and did not complete their work suddenly became interested and got right to work when they entered the computer lab. They were excited and displayed pride in their work. These students viewed working with technology as more engaging and entertaining than their regular language arts class work. Technology empowers students by engaging them in the learning process; it allows those students who have difficulty writing to have a feeling of self-confidence and accomplishment (Anderson, 2000).

It is important for the teacher to take time to get to know her students and to create a classroom that is engaging and inspires students to learn. According to Street (2005), one of the ways this can be done is to incorporate choice into learning. Street believes that writing assignments will yield better results if the students are able to have some choice in what they write.

Technology integration has the potential to further increase student motivation (Anderson, 2000). Heafner's (2004) study dealt with motivating students to learn social studies content through the use of technology. In Heafner's study, a high school teacher assigned students in her social studies class a project of creating a PowerPoint slide for a political campaign advertisement. The students were excited about the assignment and enjoyed working with the technology because they viewed it as engaging and entertaining. They felt confident in their ability to complete the task due to their familiarity with technology.

There were also some cautions recognized by Heafner (2004). Much research exists that challenges the use of technology as positively affecting students' learning. The time consuming nature of technology, information overload, the misperception that all information is "good", and social isolation are some of the negative outcomes of technology use that research recognizes (Clark, 1994; Cornelius & Boss, 2003; Heafner & McCoy, 2001; Scott & O'Sullivan, 2000; Salomon, 1997, as cited by Heafner, 2004). Heafner does not contend that technology is the only

method for instruction or the only means of motivating students, however, it is argued that effective technology integration offers opportunities to increase motivation as well as prepare students with the knowledge, skills, and values necessary to become good citizens.

In Karchmer's (2001) study, elementary teachers reported that they noticed an increase in their students' motivation to write when their work was published on the Internet. According to seven of the eight elementary teachers in the study, students' motivation to produce quality written work increased when they knew that their work would be published on the Internet. The students seemed more motivated to complete projects, and displayed a greater interest in creating quality work when they knew it would be published online. The students also were more willing to revise their writing online because it was easier to make changes to the text in an electronic format than in a print format.

Integrating computer and Internet technologies into literacy instruction in the early grades of school provides the foundation for continued learning of both conventional and digital literacies (Kinzer, Labbo, Leu, & Teale, 2002). According to the International Reading Association (2002), educators have a responsibility to effectively integrate technologies and new literacies into the language arts curriculum to help prepare students for the literacy futures they deserve (Larson, 2008). New literacies include electronic books, Internet-based reading and writing, and online communication experiences.

Larson (2008), a professor at Kansas State University, conducted a study by having undergraduate teacher candidates explore ways in which new literacies could be intertwined with traditional literacy practices. She created an Electronic Reading Workshop. The literature response journal section of the study was the focus. The preservice teachers were introduced to Rosenblatt's (1978) Transactional Theory of Reader Response. They were encouraged to keep a digital response journal, and Larson read their responses and replied to them using the editing tool, "track changes." Feedback included, "continuous, encouraging feedback with some suggestive, but not demanding comments" (Larson, 2008). The teacher candidates reported that participating in this study was helpful and prepared them for the challenge of integrating technology and differentiating instruction to meet the needs of their future students.

Wikis are collaboratively authored, searchable documents, linked internally and externally (Morgan & Smith, 2008). Wikis are easy to use and authors can easily add and change text. "Wiki" is the Hawaiian word for *quick* and describes how users can create web pages within minutes (Luce-Kapler, 2007). Students can work together to write a single, multi-

authored document, or they can help each other with their individual compositions. Changes in the wiki can be closely monitored. The collaborative format makes revision an integral part of the writing process. According to Morgan and Smith (2008), students were more engaged with the writing process when using a wiki. The students noted the "ease of composition, the de-emphasis of error, the helpfulness of the collaboration, and the efficiency with which they were able to complete assignments" (p. 82). Similary, Luce-Kapler (2007) conducted a study that engaged sixth grade students in digital literacy practices, using radical change texts and a wiki. She chose to use a wiki because it is easy to learn and allows all users to access and edit the pages on an ongoing basis. Wiki use fostered a level of engagement that was positively related to learning. Students were engaged in a process that was designed to encourage connectivity and group skills necessary to engage in a network of learning. Students often accessed one another's pages and used their peers' ideas as a springboard for their own writing.

Andes and Claggett (2011) conducted a study that focused on improving the written expression skills of special education and Title I students in second grade. A total of sixteen at-risk second graders met in small groups with teachers twice a week. They published and shared projects on a secure wiki. A different assignment was given every month. The students were motivated to read and write because they were engaged in meaningful projects. Many parents reported that their children were excited about coming to school. In a survey, the majority of the parents who responded agreed that they saw an increase in their childrens' enthusiasm for reading and writing associated with the use of the class wiki. The students, who were somewhat less receptive to printed texts, responded positively when the teachers appealed to their strengths and interests (Andes & Claggett, 2011).

In a study by fourth grade teachers, Wallwork and Campbell (2011) focused on how technology could foster growth and motivation for all students. The teacher/ researchers worked with a class of twenty-five fourth grade students with a range of reading levels. Six students were studied in depth, using a motivational survey. Two highly motivated, two moderately motivated, and two lacking in motivation students were chosen. One use of technology was a classroom blog on which students were required to write once a week but encouraged to make entries as many times as they wanted. The writing on the blog replaced writing in journals with paper and pencil. Data showed that all of the six students' motivation levels increased during the course of the study. Also, the average number of sentences written in their blogs increased compared to the number of sentences written in their paper journals. The students were interviewed

and all reported that they had enjoyed the activities and found them highly motivating and engaging.

A growing body of research supports the use of technology for motivating reluctant writers. Making an effort to integrate technology can have a positive effect on students' motivation during writing. Wikis also allow a teacher to give meaningful feedback in a timely manner. Students are more willing to edit and revise their work because of the ease of doing so on the computer. Although technology alone is not the answer, integrating technology in a purposeful way is an innovation that must be used if we are to motivate our students in these technologically driven times.

The Study

The purpose of this study was to explore how using technology in a third grade classroom was related to students' motivation to write. More specifically, the study sought to determine if the introduction of wikis and Wordles was positively related to writing motivation. I wanted to see what would happen when third grade students were given the choice of how to respond to literature in writing. The students were told they could continue to manually handwrite their responses in their journal, or they could respond using the new class wiki or Wordle. Consent forms were sent home with all of the children in the classroom. Those children whose parents returned the consent form were given the opportunity to respond to reading using technology whether they were reluctant writers or not. Permission slips were returned for fourteen third grade students: 9 boys and 5 girls. Of those fourteen students, eight were reading on grade level (Fountas and Pinell Guided Reading Level N/O), three were reading above grade level (P/Q), and three were reading below grade level (L/M).

The school where the study took place is located in a middle-class suburb outside of Philadelphia. It is a school in which most parents are very involved. In recent years, a large number of English Language Learners, as well as students with special education, have added to the demographics. The racial make-up of the school, which consists of 283 students, is 68% white, 19% Asian, 7% Hispanic, 5% Black, and 1% other. 7% receive free lunch and 2% are eligible for reduced lunch.

I chose six students to study in depth. These students were chosen based on a pre-study survey. The Garfield Motivation Elementary Writing Attitude Survey (Kear, Coffman, McKenna, & Ambrosio, 2000) was administered. The survey was designed by Dennis J. Kear of Wichita State University and can be found online at www.professorgarfield.org. The survey consists of twenty-eight questions dealing with how students feel about writing in general. I changed one question to make it better relate to the study. The new question was: How do you feel about being

able to do your Reader's Response question on the computer? The children were asked to circle the picture of Garfield that best represented how they felt about the question asked. The pictures were of Garfield looking very happy (4 points), neutral (3 points), a little annoyed (2 points), and finally of Garfield looking very angry (1 point). The points were totaled with a possible high score of 112 for a very motivated writer. I chose the six students who were most lacking in motivation based on the scores from the survey to participate in the research project. It just so happened that all six students were boys. Their scores ranged from a low of 64 to a high of 85. All but one student answered the question about doing the writing response on the computer with a 4-point answer. The other child gave that question a 1 point answer.

The research was conducted over a six week period. After administering the survey, the entire class was introduced to the new classroom wiki. I used an online website called Topsy Turvey, where the students could read an interactive book online. They were able to name their own characters and create the settings. The stories are animated and although the children have to read the main part of the story to themselves, some of the dialogue is read aloud to them. There are also sound effects. We created a story together that resembled *The Three Little Pigs* but was called *The Three Little Critters*. I then introduced the class wiki and modeled how I would respond to the book on the class wiki. We reviewed the rules for using the Internet and the Technology Use agreement that each child signed. I gave the students their login names and passwords, and encouraged them to go home and talk about the wiki with their families.

Two weeks into the study, I introduced another intervention called a Wordle. A Wordle is a program for generating "word clouds". Text is typed into a designated area and a cloud is created that incorporates all of the words. The more a word is typed, the larger it appears in the word cloud. We used the Wordle as a way to summarize a story. I modeled it using a story about the Moon that we had been studying. We then created one as a class using an article from *Time for Kids*. The next day we worked in small groups of two and three to create Wordles about bats from another *Time for Kids* article. The link was put up on the classroom eboard and the children were encouraged to create a Wordle of their own to summarize a book they had read that week.

The Participants

The six students ranged from low to high academically, but all of them lacked motivation when it came to completing their weekly written response to reading. As shown in Table 1, the reasons for the lack of motivation varied from child to child.

Table 1

Participants- Third Grade Students (Based on teacher observation, reading and writing scores, and survey results)

Name	**Level of Disengagement**	**Based on Ability or Interest**
Kyle	Moderate	Ability
Robert	High	Interest
James	High	Both
Steven	Moderate	Interest
Rich	Moderate	Both
George	High	Ability

All names are pseudonyms

Data Collection

Data were collected by administering a pre and post survey (the Garfield Motivation Writing Survey), interviewing the students, keeping a teacher journal, comparing students' writing in their journals to the writing they did on the Wiki (how many sentences and how often they wrote), and examining student created Wordles.

The Garfield Motivation Writing Survey was administered at the beginning and at the end of the study. The reason for administering the survey pre- and post study was to compare the writing motivation levels of the children before and after the introduction of technology (See Appendix A).

I interviewed the students by asking them what they thought of the Wiki and of creating word clouds on Wordle. I asked them if they enjoyed using the class Wiki more than writing manually in their journals. I also asked them if they enjoyed creating word clouds on Wordle more than writing in their journals. Finally, I asked the students if they preferred the Wiki over Wordle or vice-versa.

My teacher journal was helpful because that was where I recorded all of my thoughts, questions, insights, misconceptions, and beliefs about the study. I used it to record snippets of conversations I heard throughout the day, and to record specific things the children mentioned about using the Wiki and Wordle. I also used the journal as a place to record general anecdotal notes.

I created a chart recording how many sentences the children wrote in their journal compared to how many they wrote on the Wiki (See Appendix B). The requirements for the reading responses did not change.

The children were required to respond in writing to a book they had read using a minimum of three sentences. My hope was that the children would be motivated to write more often and more sentences when using the Wiki than when using paper and pencil. I also created a chart showing how often the children responded in their journals as compared to on the Wiki (See Appendix C).

Time Line

This was a six week study. In the third week in October, after receiving permission from the parents for their child to participate in this study, I administered the Garfield Motivation Writing survey. I then created the classroom Wiki and assigned the students their login name and passwords. I introduced the Wiki and had the students work on the first couple of entries as a group. I began keeping a teacher journal.

In November, we continued using the Wiki for reading responses, but I also introduced the Wordle as a tool for creating word clouds to summarize reading. I began conferencing with the students and continued adding to my teacher journal.

In the beginning of December, we continued responding to literature using either the Wiki or Wordle. I administered the post study Garfield Motivation Writing survey. I continued conferring with the children and adding to my teacher journal.

Data Analysis

Triangulation (Denzin, 1978) was achieved through the examination and comparison of the various data sources, specifically the pre- and post surveys, student work, interviews and teacher research journal. Pre- and post scores were compiled using the results of the Garfield Motivation Writing survey. Charts and graphs were also created showing students' writing in their journal compared to their writing on the Wiki or Wordle. A chart was created showing the comparison of the average number of sentences in the journal versus the Wiki. Another chart was made showing the difference in the number of times the students responded to their readings before, versus after, the introduction of the wiki and Wordle.

Results

Kyle scored a 65 on the pre-study Garfield Motivation survey. His score increased to a 78 on the post-study survey. Prior to the study he responded in writing to literature an average of one time per week. This increased to an average of three times per week by the end of the study. His average number of sentences written was 4 pre-study, and increased to 7 post-study. He reported that the wiki motivated him to write. Some of

the comments that he gave during a teacher-student interview were:

"It think it's fun when you're bored." "Maybe when you are going somewhere you can bring a phone or a laptop instead of a book or a pencil." "Sometimes when I am writing it is all sloppy and on the wiki it isn't sloppy."

Kyle did not create Wordles other than the ones that were assigned in class. He said that he preferred using the wiki to creating word clouds using Wordle.

James scored a 61 on the pre-study Garfield Motivation survey. His score only increased one point to a 62 on the post-study survey. Prior to the study he responded in writing to literature an average of one time per week. This increased to an average of two times per week by the end of the study. His average number of sentences written was 2 pre-study, and increased to 4 post-study. He reported that the wiki did not motivate him to write more. However, he did say he enjoyed creating word clouds using Wordle. James was more advanced than some of the other students in using Wordle, so was given the opportunity to teach them some more sophisticated techniques. He reported that he enjoyed being able to teach other students how to use technology. Some of the comments that he gave during a teacher-student interview were:

"I don't like the wiki because all of the books you can read online are bad. There is only one good book online. Writing online is not that fun." "I like that I get to choose how I want to do my reading response."

"I like the Wordle better than the wiki. I will use it if I need a cover for something. I like the java part of it."

Robert scored a 64 on the pre-study Garfield Motivation survey. His score increased the most of all of the six students to an 80 on the post-study survey. Prior to the study, he responded in writing to literature an average of one time per week. This increased dramatically to an average of 6 times per week by the end of the study. His average number of sentences written was 5 pre-study and increased to 6 post-study. He reported that the wiki motivated him to write. Some of the comments that he gave during a teacher-student interview were:

"I think it is fun to make comments on the wiki. It is fun to write stories. It is fun to read what people wrote about what you wrote. It is fun to read the stories that other people wrote about and I like to see what the other people wrote about."

Robert reported that he enjoyed using the wiki to create word clouds using Wordle.

Steven scored an 85 on the pre-study Garfield Motivation survey, which was the highest of the six students that were studied. His score increased

to an 87 on the post-study survey. Prior to the study he responded in writing to literature an average of one time per week. This increased to an average of 6 times per week by the end of the study. His average number of sentences written was 3 pre-study and increased to 5 post-study. He reported that the wiki motivated him to write. Steven did not enjoy using the Wordle as much as he enjoyed commenting on the class wiki. Some of the comments that he gave during a teacher-student interview were:

"I like the wiki and I like to comment on it." "I like to share my response about other interesting books with my friends using the wiki." "I sometimes think about writing stories on the wiki." "I will probably try that tonight." "The Wordle is ok, but I like wiki better."

Rich scored a 79 on the pre-study Garfield Motivation survey and an 87 on the post-study survey, increasing his score by 8 points. Prior to the study he responded in writing to literature an average of one time per week. This increased to an average of 2 times per week by the end of the study. However; his average number of sentences increased from 4 to 8. He reported that the wiki motivated him to write. Rich reported that he did enjoy the Wordle, but found the wiki more interesting because he could read other students' comments. Some of the comments that he gave during a teacher-student interview were:

"I like using the wiki because I get a chance to show the other kids what I know about komodo dragons." "I like reading their comments." "I like when they respond to what I have written."

George scored an 83 on the pre-study Garfield Motivation survey. His score increased to an 88 on the post-study survey. Prior to the study he responded in writing to literature an average of one time per week. This increased to an average of two times per week by the end of the study. His average number of sentences written was two pre-study and increased to four sentences post-study. He reported that the wiki motivated him to write. George reported that he enjoyed using Wordle to create word clouds. Some of the comments that he gave during a teacher-student interview were:

"I like the wiki because it's a great way to ask other kids about the book they read." "You can look at books and hear about books." "You can find out more information about books and you can respond to what other kids wrote." "The wiki is easier to do, you can just go online and your paper will never rip."

All six students reported that they liked having the choice of how they were going to complete their reading response each week. They liked being able to do the wiki one week, the Wordle the next week, and even write it manually in their Reading Response Journal one week. Some students even chose to do all three in one week. Therefore, the element of choice was reinforcing as well.

Discussion

After reviewing and analyzing the data, it was evident that the students wrote more sentences after the introduction of the wiki and Wordle than before. The students also wrote more often after the technology was introduced to the class. Some of the students responded on the wiki as many as six times a week. All of the students reported that they liked being given the opportunity to choose how they wanted to complete their reading response. The students reported that they did not feel anxious about writing because they knew they had the power of choice. Five out of the six boys who were the main focus of this study reported that they enjoyed writing their responses using the class wiki. All of the boys enjoyed using Wordle, but only one boy said he preferred it to the wiki.

Implications for Practice and Future Research

I believe that this study would have been more effective if had it been conducted over a longer period of time. I feel that six weeks was long enough to get a basic sense of how the use of technology was related to the students' motivation to write, but I am curious to see what would have happened had this study spanned the course of an entire school year. I wonder if the children were motivated because it was a new and novel activity, or if they were truly motivated to write.

I opened this article with quotes from parents expressing how beneficial they felt the use of technology had been when their children responded to reading assignments. These quotes, and other feedback I have received, give voice to the potential parents see in using technology to support literacy development. I would also like to look into using other types of technology to enhance students' involvement in writing activities. Glogster.com looks like an engaging interactive website where the children can create their own multimedia, interactive posters; they could incorporate reading responses into these posters. I would also like to continue using the classroom wiki to write interactive stories as a class.

Some of the children in this study read multicultural literature and responded to it on the wiki. These responses motivated the other children in the class to read the books that were reported on, and to respond. In one such book, *A Strawbeater's Thanksgiving,* Irene Smalls's use of narratives written by slaves to describe the heart and strength of people living in horrible times prompted some children who read about this book on the wiki to ask me to read it aloud to the class. I read it to the children and a meaningful discussion ensued. More children were then motivated to write about it on the wiki.

Finally, I believe that using technology in other content areas on a

more consistent basis will also keep the third grade students' motivation level elevated. Choice will be offered in as many areas as possible to keep the children engaged and excited about learning. I think it is important for other teachers to know how easy and worthwhile it is to incorporate technology in the classroom.

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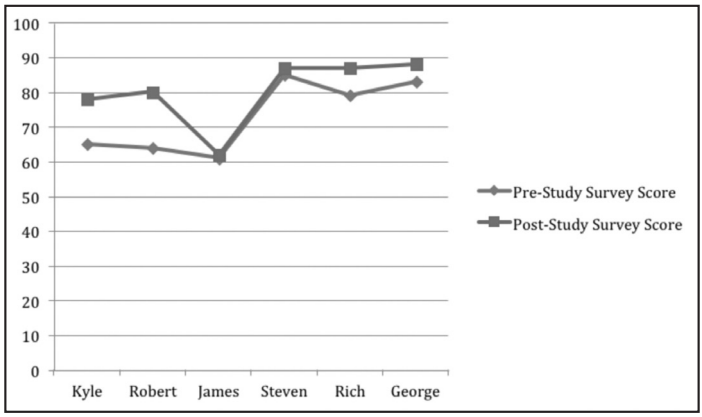
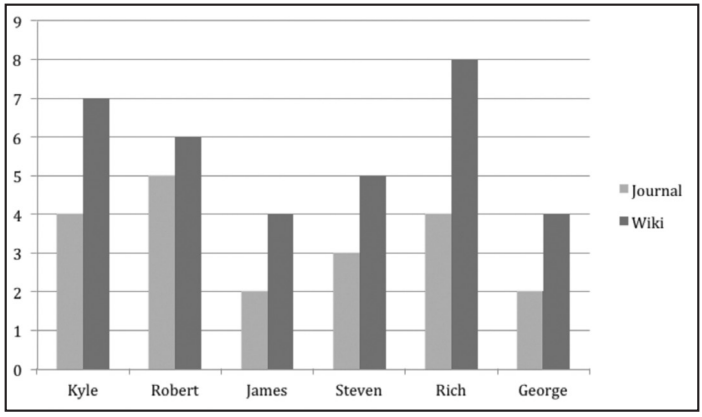
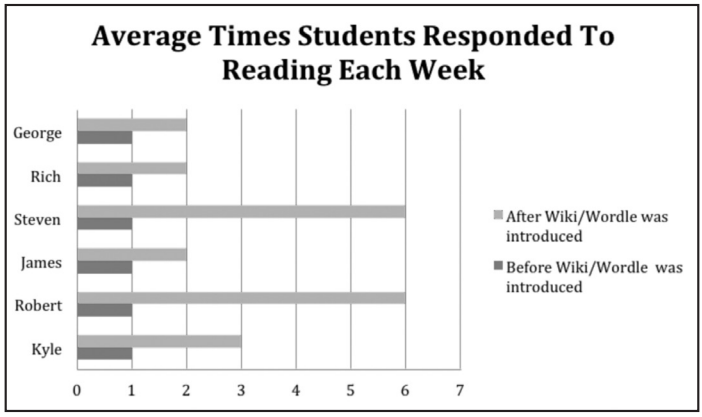


Appendix A- Garfield Writing Motivation Survey Pre-Post Study Results



Appendix B-Average # of Sentences written Journal Vs. Wiki



Appendix C- Average # of Times Students Responded Pre-Post Introduction of Wiki/Wordle

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