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Podcasting: Engaging Preservice Teachers in Learning about Reading Education with Web 2.0 Technologies

By Elizabeth A. Swaggerty, Guili Zhang, and Terry S. Atkinson

Abstract

This manuscript reports the impact of a student-created video podcast used as a vehicle to research, synthesize, and share information about prominent figures in the field of literacy education within a university undergraduate reading methods course. After creating and sharing podcast episodes, students' interest in using podcasting for both personal and educational purposes increased significantly and most described higher levels of engagement with the podcast project in comparison to a more traditional format such as PowerPoint. Students also believed that they made gains in both content and technology knowledge as a result of completing the podcast project. Findings suggest that if preservice teachers employ a new technological tool within a meaningful learning experience, they are likely to see potential for using it in their future instruction.

Podcasting: Engaging Preservice Teachers in Learning about Reading Education with Web 2.0 Technologies

By Elizabeth A. Swaggerty, Guili Zhang, and Terry S. Atkinson

Today's college students have grown up in a multimedia-driven environment that is quite different from the one that the instructors who design and facilitate their courses experienced. They prefer group activity, believe its "cool" to be smart, are intrigued by new technologies and their learning preferences favor tasks involving teamwork, real-life experiences, and technology use (Oblinger, 2004). Teacher educators should consider these characteristics and learning preferences of preservice teachers as they conceptualize and facilitate their courses. Of equal importance is consideration of the nature of the students whom pre-service teachers will be responsible for teaching once they graduate and enter the K-12 teaching environment. The youth of today are oftentimes termed "digital natives" due to their life-long exposure to technology (Prensky, 2001). They use Web 2.0 tools (such as social-networking sites, video-sharing sites, and wikis) to communicate, collaborate, create and contribute ideas and products in their daily lives (Project Tomorrow, 2009). Applying Cambourne's (1988; 2002) literacy learning theory, these out-of-school practices can be considered "natural conditions of learning" and should be more frequently and thoughtfully applied in school settings if learning is to be optimally effective.

The purpose of this study was to engage preservice teachers in learning via 21st century skills, and Web 2.0 tools in particular, to model the potential for designing similar learning opportunities for their future students. Specifically, this article reports the impact of a student-created video podcast used as a vehicle to research, synthesize, and share information about prominent figures in the field of literacy education within a university undergraduate reading methods course.

Literature Review

Conditions of Learning

Over two decades ago, Brian Cambourne (1988) proposed a theory of literacy learning positing that there are social and ecological conditions of literacy learning necessary for optimal learning. Complex learning can be characterized as *natural* in that it occurs in the world outside of the classroom as a result of social and ecological changes in society. In other words, learning happens when social and ecologically constrained conditions are present (Cambourne, 2002). Cambourne (1995) defines *conditions* as "particular states of being (doing, behaving, creating), as well as being a set of indispensable circumstances that co-occur and are synergistic in the sense that they both affect and are affected by each other" (p. 184). Thus, because natural conditions of the environment in which today's young people operate are characterized by the use of 21st century skills and tools, the inclusion of these conditions in their classroom settings offer the potential to maximize the effectiveness of students' learning.

21st Century Skills in Teacher Education

Acknowledging the need to prepare today's students to thrive in an ever-changing digital and global environment, organizations and standards promote the integration of 21st century skills into teacher preparation programs (e.g., National Council of Teachers of English, 2005; International Reading Association, 2002; International Society for Technology in Education, 2000; U.S. Department of Education, 2004). The skills identified by the Partnership for 21st Century Skills (2009) as necessary to ensure that students are prepared to compete in a global economy include (a) learning and innovation skills (creativity and innovation, critical thinking and problem solving, communication and collaboration); (b) information, media, and technology skills (information literacy, media literacy, and Information, Communications and Technology (ICT) literacy); and (c) life and career skills (flexibility and adaptability, initiative and self-direction, social and cross-cultural skills, productivity and accountability, and leadership and responsibility). These are skills meant to be taught, modeled, and integrated across the curriculum across all grade levels in K-12 schools.

Information, Communications and Technology (ICT) skills comprise one aspect of the 21st Century Skills framework. Teacher proficiency in ICT skills is essential if they are to integrate them into the curriculum. Of primary importance within ICT skills are those that utilize Web 2.0 formats and tools. O'Reilly (2005) explained that the term Web 2.0 is characterized by openness and viewing users as co-developers. It is the second generation of web development and design that facilitates information sharing and collaboration on the Internet. Increasingly, today's youth utilize Web 2.0 tools to communicate, collaborate, create, share, and contribute individual and collective ideas and products in their everyday lives (Project Tomorrow, 2009). Particularly ubiquitous in the youth-oriented Web 2.0 world is the ICT format of podcasting. Thus it is not surprising that teachers are currently experimenting with how podcasting can be meaningfully integrated within student learning. A podcast is an audio or video feed that can be subscribed to and therefore automatically downloaded to a computer or mobile device, such as an iPod® or Mp3 player (Oxford University Press, 2009).

A review of literature revealed limited research related to podcasting in both K-12 and higher education settings. Hew (2009) concluded that the most common use of podcasting is characterized by the provision of alternate presentation modes for lectures or supplementary materials. Recent research reports on the effects of podcasting in higher education have varied results. Some report that podcasting lectures or other course material is effective as a learning tool (Evans, 2008; McKinney, Dyck, & Luber, 2009), while others state that podcasting is not always enthusiastically accepted by students (Cann, 2007; Deal, 2007). Studies reveal that students generally enjoyed employing podcasts as learning tools especially because they allowed them to listen to material multiple times that they might have misunderstood or failed to note (Hew, 2009). Fernandez, Simo, and Sallan (2009) found that university students enrolled in online courses reported that instructor-created podcasts resulted in feelings of closeness between the students and the instructor, increased motivation to learn the content, and allowed for respect of diverse ways of learning beyond simply visual presentation of material. The impact of student-created podcasts in

teacher education courses has not yet been explored. This study addresses this gap in the literature by offering results of an effort to integrate student-created podcasts in an undergraduate reading methods course.

Methodology

Participants

Participants in this study (n=54) were undergraduate university students enrolled in two sections of *The Fundamentals of Reading* during the spring 2008 semester, each taught in a traditional face-to-face format by the first author. This course was the first of two reading courses that were required for all undergraduate elementary and special education majors, although many students chose to pursue a reading add-on licensure that required the completion of additional reading courses. Most students were females in their early twenties and completed the course during their junior year. Pseudonyms are used throughout in order to protect the participants' rights to privacy.

Course Design

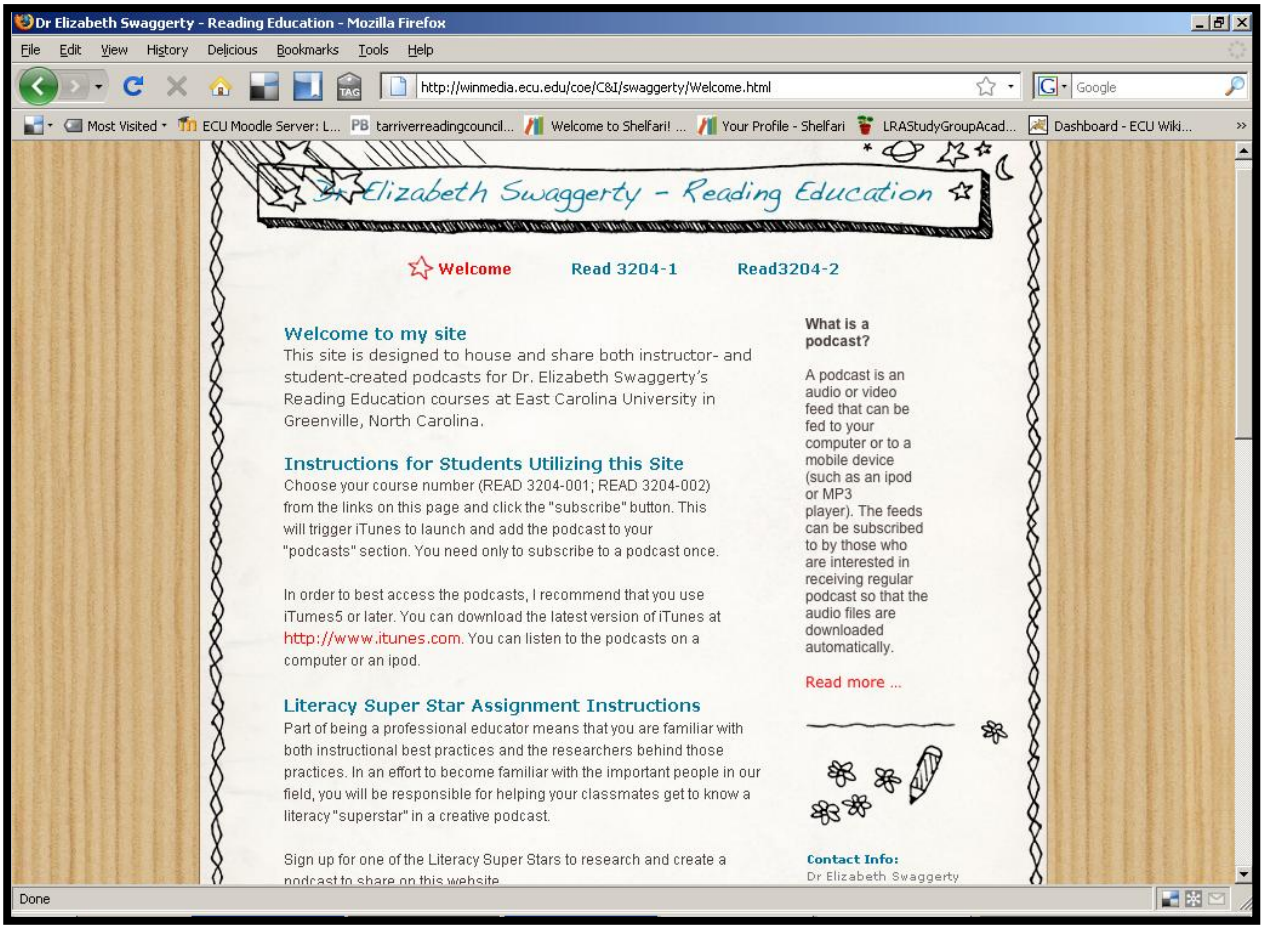
Course objectives specified that students would demonstrate an understanding of (a) the interrelationships among the language arts; (b) the nature of the reading process; (c) a developmental reading program in grades K-12; (d) various approaches, methods, and materials used in the teaching of reading; and (e) the nature of reading assessment. The instructor emphasized a balanced literacy approach to teaching reading, comprehension, motivation and engagement, integration of 21st century skills (Partnership for 21st Century Skills, 2006), and the importance of continual professional development, specifically in the field of reading instruction. A professional book by Cunningham and Allington (2007) was used as the primary course text in order to model the value and use of various resources when designing classroom reading instruction (rather than relying on one tool such as a basal text). Supplementary readings from various journals and books in a course packet were also assigned.

Literacy Superstar Podcast Project

In an effort to emphasize the role of researchers contributing notable theories and practices in the field of reading education (and whom students would encounter in their readings for the course), students completed a project in which they became familiar with various "literacy superstars" as they learned about corresponding topics throughout the semester. For example, when the topic of "transacting with text" was explored, Louise Rosenblatt was a featured literacy superstar and when "emergent literacy" was a topic of study, Marie Clay was an aligned superstar. In previous semesters, this project was completed in a poster or PowerPoint® presentation format. Podcasting was conceptualized as a way to build students' digital literacy skills and strengthen content knowledge as they worked to co-construct knowledge with a partner. Choosing podcasting as the learning format allowed student use of a Web 2.0 tool versus a more familiar static media format such as PowerPoint (International Society for Technology in Education, 2000). By designating Garage Band® as the platform for creating the web-based episodes, content could be shared in both audio and visual formats.

An instructional technologist conducted a brief training session in class to introduce students to the software program (Garage Band) and the technological tools (iPod and microphone attachment) to be used for the project, and served as a resource for students throughout the course. Students worked in pairs or groups of three to create an episode of the "Literacy Superstar Podcast" for the course website. Students chose a prominent figure in the field of literacy education, researched the literacy superstar's life and his or her impact on the field, synthesized the information, and created a script for the project. Most students borrowed iPods with microphone attachments from the department to record their narration for the project and then used Garage Band software to manipulate and edit the audio by adding music and graphic images to enhance the project. A course website (see figure 1) was created to house and share the podcasts, which featured new episodes each week and were open to the public. Screenshots and links for sample student-created podcast episodes appear in Appendix A.

Figure 1
READ 3204 Course Podcast Website
http://winmedia.ecu.edu/coe/C&I/swaggerty/Welcome.html



Data Collection and Analysis

An initial survey (see Appendix B) and a follow-up survey (see Appendix C) regarding students' experience with podcasting and a "Podcast Reflection and Report" (see Appendix D) served as the data sources for this study. Students completed an initial survey at the beginning of the semester. The purpose of the initial survey was to document students' previous experience with podcasting in order to design the podcast project with appropriate support. The follow-up survey was administered at the end of the semester in order to gain formative feedback on the implementation of podcasting into the course and to

suggest implications for the future course design. Both surveys included quantitative (i.e., forced choice items and Likert-scale items) and qualitative items (open-ended questions). A comparison of the initial survey and the follow-up survey was conducted to examine the impact of the podcast project on students' attitudes and interests. Specifically, students' interest in using podcasts for personal purposes (item 9) and their interest in using podcasts for educational purposes (item 10) before and after the podcast project were statistically compared.

Additionally, upon completion of each podcast, students completed a Podcast Reflection and Report. The first half of the Podcast Reflection and Report was used by the instructor for evaluative purposes for the course. The second half was non-evaluative, included open-ended questions, and was also included in the data analysis for this article.

Qualitative analysis of the open-ended items involved constant comparative analysis in order to identify theme patterns related to students' experiences with the podcasting project (Creswell, 1998). Student responses to each open-ended item were sorted and categorized into a tentative list of codes (Creswell). Themes were generated from the codes. When we felt confident that the themes and corresponding codes would stand up, we continued to code the remaining data and further collapsed and refined the themes. In order to ensure trustworthiness and rigor, we sought feedback for the coding from a peer interrogator who questioned our choice of codes and checked our inference levels (Lincoln & Guba, 1985). Discussion about the codes prompted us to refine them for final analysis. Finally, the frequency of code occurrences were noted (Huberman & Miles, 1994).

Results and Findings

The purpose of this study was to explore an effort to engage preservice teachers in learning via Web 2.0 technology and 21st century skills through a collaborative podcasting project in an undergraduate reading methods course. An initial survey was administered at the beginning of the semester in order to obtain information about the preservice teachers' prior experience with podcasting and related technology.

Initial Results: Before the Podcasting Project

The responses of the initial survey indicated that the majority of study participants did not have experience with podcasting. Specifically, among the 54 preservice teachers, 21 (38.9%) did not own or have regular access to an MP3 player. An overwhelming number of students, 47 (87%) were not familiar with podcasts, while 6 (11.1%) were somewhat familiar, 1 (1.9%) was familiar, and 0 (0%) were very familiar (see Figure 2). Thirty-two (59.3%) had never listened to a podcast, and none of them (0%) had ever created a podcast. It should be noted that students may not have realized that they could listen to podcasts on computers when they completed the survey. Thirty-seven (68.5%) had never listened to a podcast for educational purposes, and nearly all of them (53 or 98.1%) had never subscribed to a podcast and were not subscribed to a podcast at the time of survey. These results are summarized in Table 1.

Figure 2
Preservice Teachers' Initial Familiarity with Podcasts

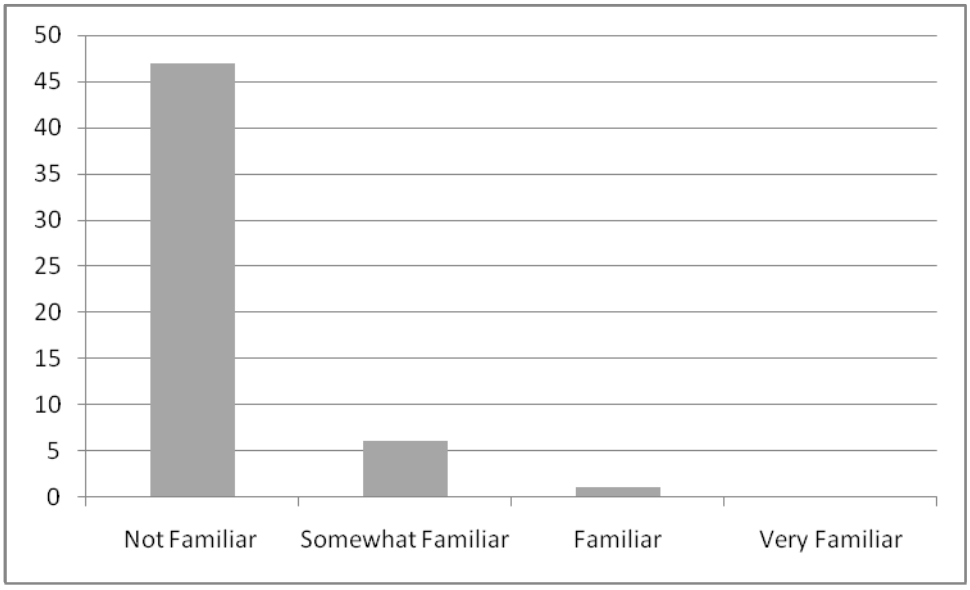


Table 1
Preservice Teachers Initial Survey Responses Regarding Podcasts

Questions	Yes	No
Do you own or have regular access to an MP3 player?	33 (61.1%)	21 (38.9%)
Have you ever listened to a podcast?	22 (40.7%)	32 (59.3%)
Have you ever created a podcast?	0 (0%)	54 (100%)
Have you ever listened to a podcast for educational purposes?	17 (31.5%)	37 (68.5%)
Have you ever subscribed to a podcast?	1 (1.9%)	53 (98.1%)
Do you currently subscribe to a podcast?	1 (1.9%)	53 (98.1%)

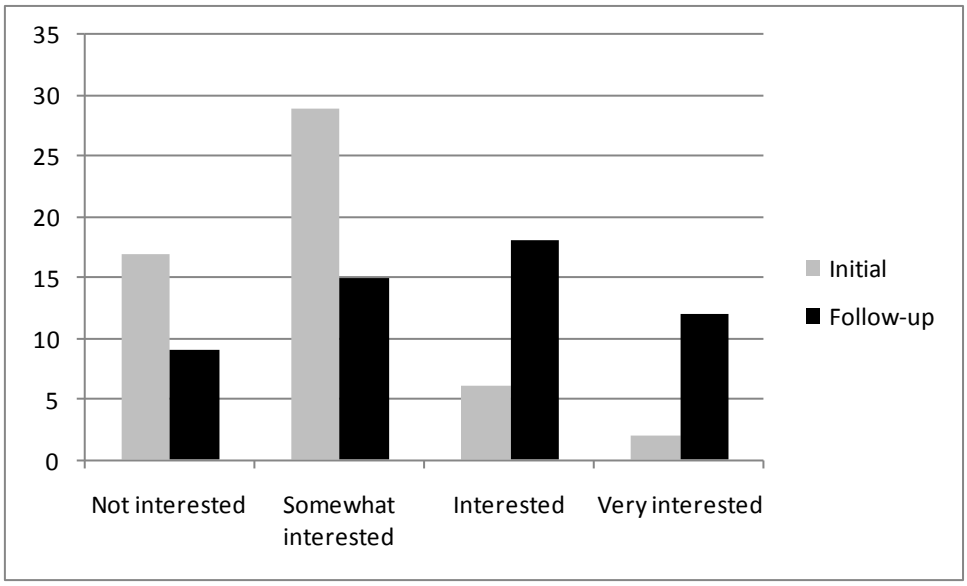
The students' responses to the open-ended item on the initial survey also revealed that approximately half of participants had a positive attitude toward the Literacy Superstar podcast project when it was initially presented to the class (27/55; 49%). These students seemed intrigued by the idea, using descriptors such as, "fun," "exciting," "appealing," and "interesting" in their responses. For example, one student stated, "I am excited to learn how to make a podcast" and another explained, "I think this assignment will be interesting. I'm much more excited about it than I would be about writing a paper!" However, many students (20/55; 36%) students responded to this question with mixed emotions. For example, one student commented, "It will be challenging because I'm not very creative with assignments like this, but I think it will be a useful tool to use in my classroom in the future to make lessons more interesting in the classroom." A small percentage of students (7/55; 13%) responded to this question with evidence of anxiety. One student admitted, "I'm not excited about it being able to be heard by anyone on the web, and I feel as though this is a very difficult assignment. I will be glad when it is over."

Follow-up Results: After the Podcasting Project

Interest in using podcasting for personal and educational purposes. Upon completion of the project, students' interest in using podcasting for personal purposes and for educational purposes both increased significantly. As shown in Figure 3, after completing the podcast project experience, the

number of preservice teachers who were either interested or very interested in using podcasts for personal purposes was 30, while before the project; only eight indicated that they were either interested or very interested.

Figure 3
A Comparison of Preservice Teachers' Interest in Using Podcasts for Personal Purposes before and after the Project



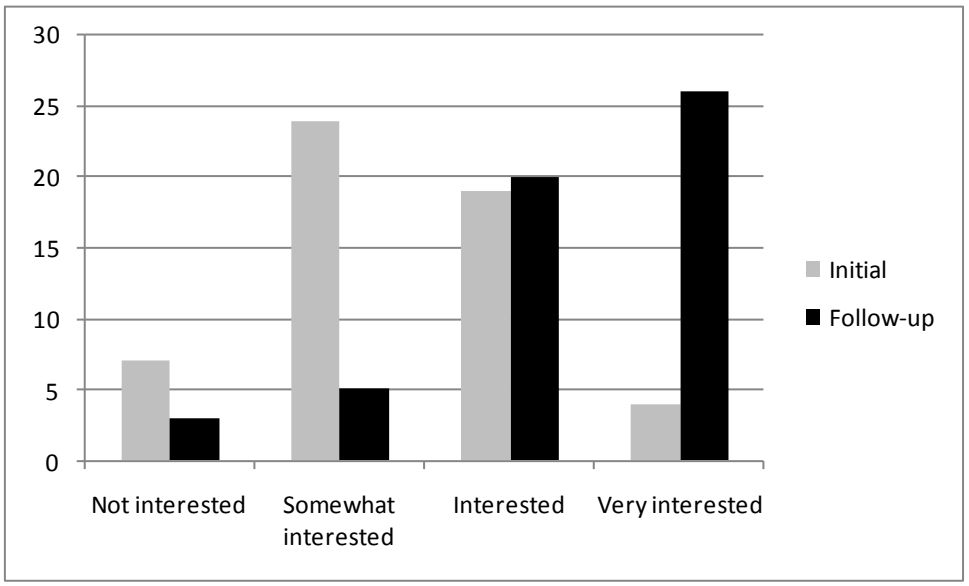
The preservice teachers' initial interest in using podcasts for personal purposes had a mean of 1.87, a value between not interested and somewhat interested, while after the podcast project, the average of interest among the preservice teachers were 2.61, a value between somewhat interested and interested. A *t*-test for correlated means (Fraenkel & Wallen, 2009) was conducted to test for statistical difference between preservice teachers' interest in using podcasts for personal purposes before and after the podcast project, and as shown in Table 2, the results indicated that the preservice teachers interest in using podcasts for personal purpose has increased significantly (t = 4.314, p-value = 0.000). The effect size using Cohen's *d* (Cohen, 1965; Zhang, 2009; Zhang & Algina, in press) is 0.593, indicating a medium to large-sized effect.

Table 2
T test on Preservice Teachers' Interest in Using Podcasts for Personal Purposes Before and After the Podcast Project

Survey	n	Mean	*sd*	*t*	*p*	*d*
Before	54	1.87	0.754			
After	54	2.61	1.017	4.314	.000	0.593

Similarly, after completing the podcast project , the number of preservice teachers who were either interested or very interested in using podcasts for personal purposes was 46, a large increase from the 22 who indicated that they were either interested or very interested in the initial survey (see Figure 4).

Figure 4
A Comparison of Preservice Teachers' Interest in Using Podcasts for Educational Purposes before and after the Podcast Project



The preservice teachers' initial interest in using podcasting for educational purposes had a mean of 2.37, a value between somewhat interested and interested, while after the podcast project, the average of interest among the preservice teachers were 3.28, a value between interested and very interested. A *t*-

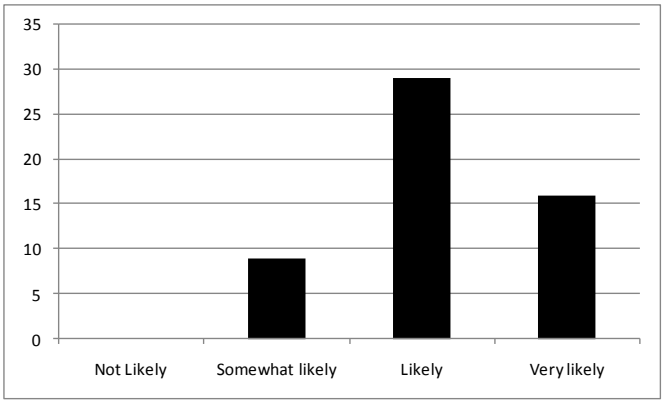
test for correlated means (Fraenkel & Wallen, 2009) was also conducted to test for statistical difference between preservice teachers' interest in using podcasts for educational purposes before and after the podcast project. As presented in Table 3, the results indicated that the preservice teachers' interest in using podcast for educational purposes had increased significantly (t = 6.829, p-value = 0.000). The effect size, using Cohen's d (Cohen, 1965; Zhang, 2009; Zhang & Algina, in press) is 0.932, indicates a very large size of effect.

Table 3
T test on Preservice Teachers' Interest in Using Podcasts for Educational Purposes Before and After the Podcast Project

Survey	n	Mean	*sd*	*t*	*p*	*d*
Before	54	2.37	0.808			
After	54	3.28	0.856	6.829	.000	0.932

Perhaps most importantly, after completing the podcast project, all of the preservice teachers indicated that they were likely to incorporate iPods/Mp3 players into their future instruction (see Figure 5). Specifically, 16 (29.6%) were very likely, 29 (53.7%) were likely, and 9 (16.7%) were somewhat likely.

Figure 5
Preservice Teachers' Likelihood of Using iPods/MP3 into Future Instruction after the Podcast Project



Due to the nature of a podcast, each episode was due (made available) at various intervals throughout the duration of the course. After students posted their podcast episode, they completed a podcast reflection and report, which included several open-ended items, one of which was analyzed for this study: "Compare your learning in completing this project to a more traditional project such as a paper, poster, presentation, or power point [sic]." Themes related to engagement and knowledge gained were identified that provide further insight and meaning to the quantitative findings and are further explained in subsequent paragraphs.

Engagement in the learning process. There were 30 instances related to engagement and coded within the *engage* category. The phrase, "attracting and holding attention in a positive manner" guided the identification of instances in this category. Words and phrases such as *engaging, interesting, fun, enjoyed it,* and *had to think more* characterized instances in this category. Trisha commented, "It was more fun and intriguing doing the project this way." Fiona explained, "This project is kind of like thinking outside of the box and it made things more interesting because we have all done plenty of papers and power points [sic] but for many of us, this was our first time making a podcast." A closer look at the "engage" theme revealed three subthemes: novelty, creativity, and attractive podcast format characteristics. There were 18 instances coded within the "novelty" category, in which students described the podcast learning format as something "new" or "different." In the vast majority of these instances (15/18, 83%), students regarded this novelty as a positive characteristic. For example, Karmen explained, "Compared to many other tired projects and assignments, it was nice to have something different to do." Dennis also explained how learning an alternative format for a project intrigued him,

> I enjoyed this more that the other types of projects mainly because I learned how to do something different. Posters can be either drawn or cut outs of pictures and that can be boring. Power point [sic] is ok if you are creative and have a good subject to do your

> project on. As for the podcast, it has opened up a new avenue to both learning and to teaching, one that hopefully both I and my future students will continue to learn from.

Three students commented that the novelty of the project challenged their comfort zone. Pam commented, "A power point [sic] may have been a little easier on my nerves, but this [podcast] was fun," Karmen wrote, "Making the podcast was somewhat stressful because it was a new experience," and Maya explained, "Although I was nervous in the beginning with having to deal with a different technology, I did learn the material."

The next subtheme identified was "creativity." There were 13 instances in which students pointed to the opportunity to be creative with the project. For example, Alisa wrote, "This [the podcast] gave me a chance to express what I found in a fun and creative way." Karin explained, "We were able to incorporate different music and images that worked well with the format that we chose and I don't think that we would have had as much freedom to be creative in a traditional project."

The final subtheme identified was "attractive podcast format characteristics." It was common for students to point to the characteristics of the podcast format that appealed to them. There were 19 coded instances in this category including the following characteristics: presentation style, image and sound capability, length of presentation, accessibility, and cost-efficiency. Samantha described her preference for a format that allows for brevity in the product:

> I also like that it is a short but to the point video. I feel that students get more out of short videos with a lot of information compared to long power points [sic] with a lot of "fluff" information.

Fiona was attracted to the ability to share the project with others:

> First of all we were able to share our project with the whole class where as if we wrote a paper or something like that, only the teacher would read it. Also, we didn't only learn about our superstar but we were able to learn about everyone else's superstars.

Julie verbalized how this project allowed her to speak in class in a nonthreatening manner, "It was also good because you did not have to present in front of the class so you did not have to worry about being nervous or forgetting to say some information." Anne was one of three students to point to the affordability of the project, "It also does not cost as much to do as long as you have the computer and the program. With a poster board you need to buy all the materials."

On the other hand, there were three instances in which students identified a negative aspect of the podcast format. One student implied that she did not learn the required content due to the "bells and whistles" of the podcast format:

> Initially, I don't think someone who creates a podcast is going to retain as much knowledge as they would if they had done a more traditional project. At first, the creator is so focused on adding the special effects that they don't retain the content. Also, with presentations, posters and power points [sic], the creator most of the time presents in front of a group and this requires them to learn their information more thoroughly.

Another student mentioned that she had difficulty acquiring the technological devices necessary for the project, and another student commented, "I still think I would rather get in front of the class and present a project, but that is the type of person I am."

Content knowledge and technological skills. The second theme centered on *knowledge gained* in terms of both content (knowledge about literacy superstar) and technological skills. There were 21 instances of content knowledge gained coded. Samantha explained her learning in terms of content:

> I think I learned a lot more about Patricia Cunningham through this project because I had to research it, write it down, and then put it into words that other students will understand. I recorded my podcast over a week ago and I can still remember everything I learned by doing it. If I had presented a poster or a speech, I don't think I would remember half of it.

Lori provided another description of learning related to content:

> I learned a lot more in this project than I would have from a paper or poster because with those presentations, you just simply write the information down and then forget it. With the podcast, you had to research and evaluate what was important, then write a script for it, then turn it into a podcast. This allowed me to grasp the information more so than the other projects would.

There were eight students who felt that they learned the content in the same degree as they would have via a format other than a podcast. Beth commented, "It was basically a new way to learn information. I feel like I would learn the same amount with a traditional project." Catherine explained, "I would have done the same presentation in a Power Point [sic] presentation. I am more familiar with Power Point [sic] versus the podcast. A podcast to me is just a newer way of completing an assignment."

Two students seemed to enjoy the project more, even though they thought they would learn the content, regardless of the format. Emma wrote, "I learned just as much in this project as a traditional

project, but I enjoyed it far more." Kristin explained that although the format didn't matter to her in terms of her learning of content, she seemed to like the creative aspect of the podcast format:

> Well, I feel like I learned just as much by doing a podcast as I would've by making a poster or a paper because I still had to do research and learn about my LSS (Literacy Superstar) but I was able to add pictures and we could make any kind of skit we wanted to.

In addition to mention of content knowledge gained, there were 14 instances in which students described their learning in terms of technology, described their preference for using technological tools, or described the importance of technology. For example, Ellen explained, "I learned more about the software on Macs and how to make a podcast." Shannon wrote, "I like using a computer because I learn more things and there are things that I haven't used so it gives me an opportunity to learn them." Karin rationalized, "This project definitely allowed me to integrate a new source of technology that is becoming more and more popular among children which will be definitely impact my future classroom."

Discussion

This study sought to examine the impact of a podcasting project on preservice teachers' interests and attitudes in two sections of an undergraduate reading methods course. Despite literature that characterizes current college students as tech-savvy (Oblinger, 2004; Prensky, 2001), students in this study initially reported very limited experience with the podcasting format and harbored some anxiousness about completing a podcast episode; however, half of them remained positive about the task. After creating and sharing their podcasts, students' interest in using podcasting for both personal and educational purposes increased significantly. Most described higher levels of engagement with the podcast project in comparison to a more traditional format such as PowerPoint for a number of reasons. Reinforcing a finding described by Fernandez, Simo, and Sallan (2009), some students were engaged in

the podcast project due to its novel format; they were intrigued by the idea of learning something new and exciting. They also referred to various aspects of podcasting as particularly appealing such as its presentation style, image and sound capability, brevity of presentation duration, accessibility, and cost-efficiency. Additionally, they described engagement in a project that allowed for creativity. Moreover, these students believed that they made gains in both content and technology knowledge as a result of completing the project through use of the podcast format. Further research might explore the hypothesis that students who are more engaged in learning with new technologies gain more content knowledge. Lastly, all students indicated that they were likely to incorporate the technological tools used to make the podcast in their future instruction. This finding suggests that if students have the opportunity to employ a new technological tool within a meaningful learning experience, then they are likely to see potential for using it in their future instruction.

Consideration of the few students who did not prefer the podcasting project is worthy of further investigation. These students stated that they would have rather utilized a more traditional format for the project, such as PowerPoint. Acknowledging that all students are different and have different learning preferences, it is necessary for teacher educators to encourage those preservice teachers who are reluctant to try new technologies. With the rapid development of technological tools and formats, teacher educators must be prepared to support students to become productive members of an increasingly digital society. As future groups of preservice teachers in this course delve into unfamiliar territory with new technology formats, discussion of resistance to change and fear of failure might be explored in order to help these future teachers deal more productively with reluctant learners in their own classrooms.

Although this article describes preservice teachers' engagement with a podcasting activity, an important implication is suggested, regardless of the type of technological tool or format used. If students are asked to create a product that requires creativity in combination with new technologies (technologies that allow for attractive presentation style, image and sound capability, brevity in the duration of the presentation, accessibility, and cost-efficiency), matching the advantages and disadvantages of

technological tools and formats with intended learning objectives should be examined. Specifically, asking study participants to compare their podcast experience with a more traditional project could have fostered the critical thinking and decision-making skills necessary to more meaningful and appropriate technology integration across student learning experiences. Increasing numbers of emerging technologies can overwhelm undiscerning teachers, such tools and formats have limitless potential for use in educational settings if they are more thoughtfully chosen.

Further research is needed to create a knowledge base about the effects of employing Web 2.0 tools and formats, such as podcasting, in higher education courses within face-to-face, online, and hybrid settings. Studies might explore effective ways of utilizing new technological tools and platforms to enhance student engagement and learning at all levels and in various settings. It should be noted that this study represents only 54 students' reporting of their podcasting experience in one course, limiting its generalizability. Future studies might employ experimental designs with larger sample sizes and control groups, exploring knowledge gained via traditional vs. technological formats and comparing the characteristics of students' preferences in terms of various technological formats and tools.

Conclusions

Acknowledging that current K-12 students are avid users of various new technologies in their daily lives, it is imperative that teachers become familiar with ways to meaningfully engage this generation in instruction that mirrors aspects of these out -of-school practices. Creating natural conditions of learning (Cambourne, 1988) that are characterized by 21st century skills and tools within school settings result in more engaged learners and prepares students to be productive members of a rapidly changing digital and global world. Teachers should work to bridge the out-of-school practices of digital natives with classroom learning activities that integrate 21st century skills, and Web 2.0 technologies.

It follows that teacher educators should work more diligently to integrate 21st century skills into their coursework. In doing so, they can support their future students in terms of integrating 21st century skills meaningfully (International Society for Technology in Education, 2000) in their own lives and in

that of the students whom they will ultimately teach. The podcast project described in this study engaged preservice teachers in learning about "literacy superstars," developed their digital literacy skills, and fostering their interest in incorporating such technologies in their future teaching practices. Upon completion of the project, preservice teachers' interest in podcasting increased significantly and all of them reported interest in using technological tools in their future instruction.

New and exciting digital and media technologies such as podcasting can be used to "push" students out of their comfort zones so that they may simultaneously strengthen 21st century skills and develop content knowledge. Ultimately, if preservice teachers are supported in their risk-taking efforts to employ new technologies in thoughtful ways, they are more likely to see the potential of integrating them into their own teaching. Meaningful integration of tasks that are characterized by 21st century foci such as technology use, critical thinking, information-seeking, collaboration, and information synthesis has great potential to breathe life, and the oft missing elements of creativity and innovation, into both teaching and learning at all levels.

Changes in today's digital and global environment signal a change in pedagogy at all levels; a move from passive learning to one that considers the "natural" learning that currently takes place outside of school and is characterized by the integration of Web 2.0 tools. Teachers must rethink traditional lesson plans, especially those in which students serve primarily as passive receivers of knowledge. Rather, the learning process should reflect digital and global characteristics of today's environment leading to engagement and inquiry in the classroom and beyond.

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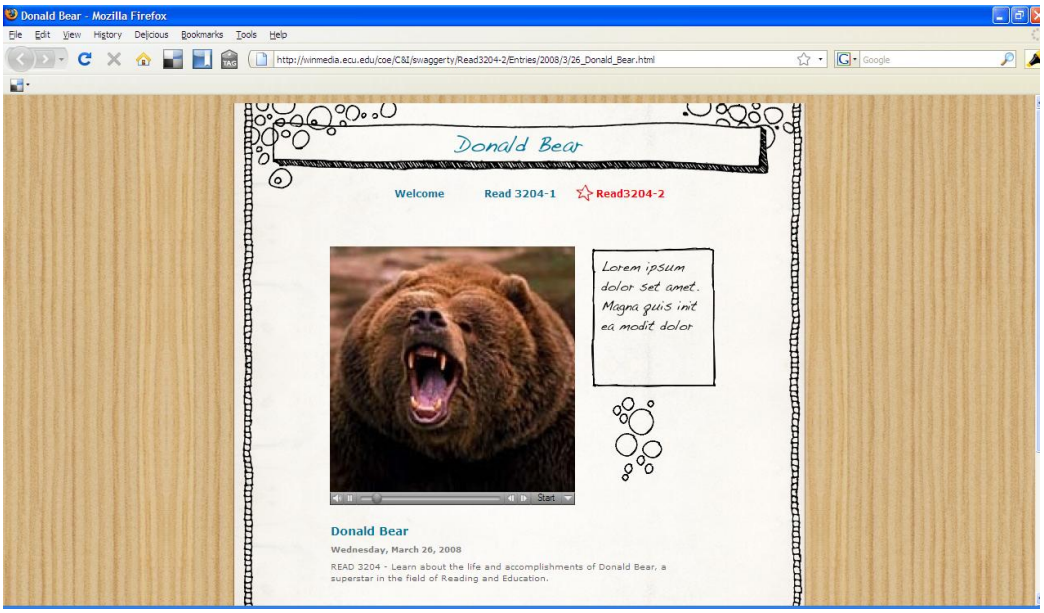
Appendix A

Sample Student-created Podcast Episodes

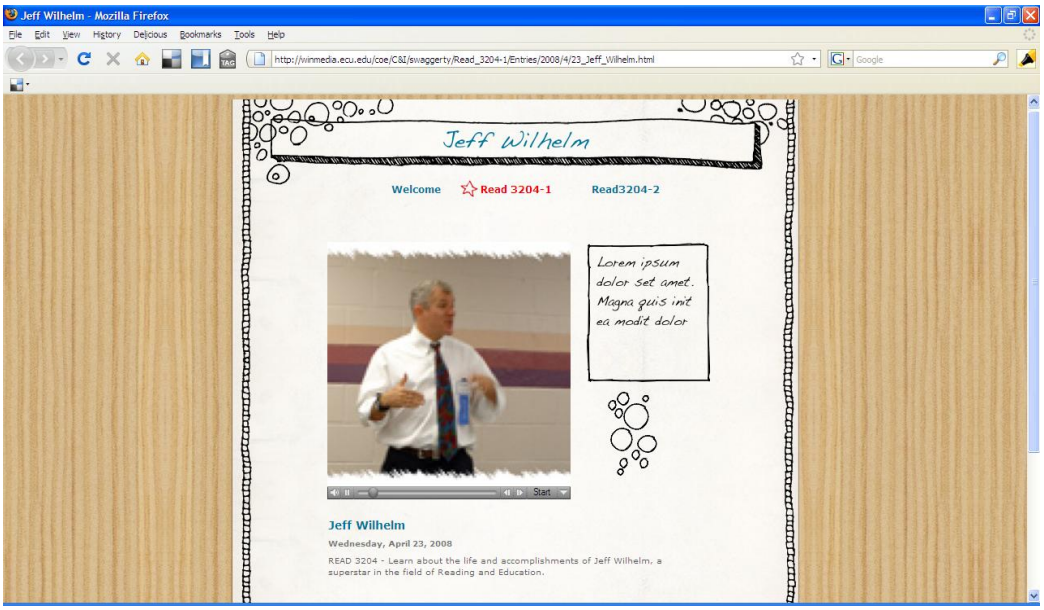
Donald Bear

http://winmedia.ecu.edu/coe/C&I/swaggerty/Read3204-2/Entries/2008/3/26_Donald_Bear.html



Jeff Wilhelm

http://winmedia.ecu.edu/coe/C&I/swaggerty/Read_3204-1/Entries/2008/4/23_Jeff_Wilhelm.html



Appendix B
READ 3204 Podcast Initial Survey

Name: _____
January 2008

Do you own or have regular access to an MP3 player?

YES NO

Rate your familiarity with podcasts.

Not familiar	Somewhat familiar	Familiar	Very Familiar
1	2	3	4

Have you ever *listened* to a podcast?

YES NO

Have you ever *created* a podcast?

YES NO

If so, did you create the podcast for *educational* or *personal* purposes? (circle one)

Educational Personal

Have you ever listened to a podcast for *educational* purposes?

YES NO

Have you ever subscribed to a podcast?

YES NO

Do you currently subscribe to a podcast(s)?

YES NO

Rate your interest in using podcasts for *personal* purposes.

Not Interested	Somewhat Interested	Interested	Very Interested
1	2	3	4

Rate your interest in using podcasts for *educational* purposes.

Not interested	Somewhat Interested	Interested	Very Interested
1	2	3	4

Describe your feelings related to the Literacy Superstar Podcast assignment this semester.

_____

_____

_____

_____

Additional comments:

_____

_____

_____

_____

Appendix C
READ 3204 Podcast Follow-Up Survey

Name: _____

Rate your interest in using podcasts for personal purposes.

Not interested	Somewhat interested	Interested	Very interested
1	2	3	4

Rate your interest in using podcasts for educational purposes.

Not interested	Somewhat interested	Interested	Very interested
1	2	3	4

What is the likelihood that you will consider incorporating the use of iPods/Mp3 players into your future instruction?

Not likely	Somewhat likely	Likely	Very likely
1	2	3	4

Do you have any additional thoughts or comments about engaging students in technology-related projects?

_____

_____

_____

_____

Appendix D
Literacy Superstar Podcast Project Reflection and Report
READ 3204 Spring 2008

Name: _____
Superstar: _____
Podcast Due Date: _____
Today's Date: _____

1. Please comment on the content of your project. Summarize your learning about your literacy superstar.

_____
_____
_____
_____
_____

2. Please comment on the division of labor for your project.
   a. Who was responsible for which tasks in your group?

_____
_____
_____
_____
_____

   b. In your opinion, was the division of labor fair? In other words, did everyone do their share of the work?

_____
_____
_____
_____
_____

3. Please comment on the overall experience and what you gained from it.

_____
_____
_____
_____
_____

4. Please identify the grade you feel you deserve and describe your rationale for this choice.

_____
_____
_____

5. Additional comments.

Non-evaluative Questions

6. Compare your learning in completing this project to a more traditional project such as a paper, poster, presentation, or PowerPoint.

7. Please comment on your experience with technology.

a. Describe your experience in accessing the technology you needed to complete the project (iPod, iSpeak, Mac with GarageBand).

b. Describe your experience in getting support in using the technology (if you needed it.)

c. Describe your comfort level with the technologies (iPod, iSpeak, Garage Band software) *before* the project and *after* the project.