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Writing the World: Preservice Teachers' Perceptions of 21st Century Writing instruction

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> *This course really opened my eyes and made me redefine what I think writing instruction could be and what it is. I don't think I realized all the different forms of literacy and styles that you could really explore. That's definitely been something that's changed for me. I feel much more aware of the possibilities and all the different aspects that you can explore throughout writing instruction that I don't think I was aware of before, or maybe had considered* (Kaitlin, preservice teacher, pseudonyms are used throughout the paper).

Introduction

Middle school and high school classrooms house advanced technologies more than ever before. For example, the average ratio of students to computers is 5.3:1 and approximately 93% of these classroom computers have access to the internet (U.S. Department of Education, 2010). In addition, according to the Pew Internet Organization (2008), 78% of adolescents think their writing would improve if their teachers used computer-based writing tools, such as games, websites, and multimedia programs. Despite the integration of technology and students' desire to use technology during writing, researchers have noted that "much of what counts as good writing in schools does not reflect evolving notions of texts" (Hudley & Holbrook, 2013, p. 500). In their large-scale study of 20 middle and high schools from five states, Applebee & Langer (2011) found, "for the most part, that technology seems to be reinforcing traditional patterns of teacher-centered instruction rather than opening up new possibilities" (p. 23). Computers and digital tools were mostly used for students to type their final drafts, rather than exploring new ideas about composition.

The discrepancy between what teachers have, in terms of technology, and how they use technology elicits a response from teacher educators. Teacher

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educators need to examine how teachers are prepared to teach writing using technology, particularly in ways that effectively provide middle and high school students with opportunities to become designers, creators, and meaning-makers. They must be invested in learning more about preservice teachers' perceptions about using technology to teach writing. Furthermore, they need to commit to designing writing methods courses with an emphasis on using technology for composition.

The desire to prepare preservice English language arts teachers to teach writing using technology stems from a belief that literacy is social, grounded in specific contexts, and situated in experiences. Derived from the notion that literacy is a social practice (Cope & Kalantizis, 2000), multiliteracies recognizes that "meaning-making occurs through a variety of communicative channels" (Perry, 2012, p. 58), including audio, visual, spatial, gestural, and other modes of representation (The New London Group, 1996). Text is not solely print-based, but rather embodies other semiotic resources (Gee, 1996; Lankshear & Knobel, 2003; The New London Group, 1996). This perspective can also take a critical stance in that literacy can be viewed as a catalyst for social change and a means to empower students as "active designers" (Cope and Kalantzis, 2000).

As teacher educators, our pedagogical practices reflect this theoretical stance. We want to provide our preservice teachers opportunities to consider how they may situate digital literacy practices within the context of schools, particularly, how preservice teachers may integrate technology into classrooms appropriating digital tools. In order to do this, we provide specific experiences in our methods courses that allow our preservice teachers opportunities to create texts that are multimodal and digitally constructed, illustrating broadened definitions of text and composition.

The purpose of this paper is to share our preservice teachers' perceptions of integrating technology into writing instruction before and after a methods course and the experiences in a methods course that, according to the preservice teachers, influenced these perceptions.

21st Century Writing: Preservice Teachers' Perspectives and Practices

Research has demonstrated that during methods courses, preservice teachers construct ideas for the instructional practices they would like to implement (Grossman et al., 2000; Mahurt, 1998). The development of these instructional practices is primarily supported by teacher educators in the university setting. Through multiple means, teacher educators scaffold the development of preservice educators' theoretical foundations, content knowledge and selection of tools. It is also during this crucial time when teacher educators

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work towards reconstructing the prior beliefs and assumptions that preservice teachers bring to the teaching of a specific content area. As research has shown, many times these beliefs and assumptions about writing are "deeply ingrained" and often negative (Morgan & Pytash, 2014). Therefore, teacher educators typically have a limited time frame in which to accomplish these goals (Kindle & Schmidt, 2011), which speaks to the importance of preservice education methods courses. Due to the importance and limited time frame associated with methods courses, teacher educators must be deliberative and informed in their instructional choices and practices.

Doering, O'Brien, & Beach (2007) describe this form of deliberative and informed practice by detailing how they transformed their English education program by infusing digital tools into all of their methods courses, including those focused on composition. Other researchers have explored using digital tools in specific writing methods courses (Johnson & Smagorinsky, 2013; Rish, 2013; Werderich & Manderino, 2013). This work has documented that despite often using technology to write in their personal lives, preservice teachers are typically in the beginning stages of considering how they will navigate traditional writing and composing with digital tools in their future classrooms. Therefore, research points to the importance of providing specific composing experiences that allow preservice teachers opportunities to write in multiple formats (Hundley, Smith, & Holbrook, 2013; Johnson & Smagorinsky, 2013; Rish, 2013; Werderich & Manderino, 2013).

When exploring how preservice teachers engage in writing with digital tools in university methods courses, much of the research focuses on specific course assignments, such as multimodal poetry (Johnson & Smagorinsky, 2013), multimedia memoirs (Werderich & Manderino, 2013), digital This I Believe compositions (Rish, 2013), and literary analysis (Hundley, et al., 2013). For example, Hundley et al. (2013) explored preservice teachers' definitions of writing and found that preservice teachers defined 'real' writing as traditional print-based, and struggled to conceptualize broader forms of multimodal composition as writing. In order to further explore these perceptions of "real" writing, Hundley et al. (2013), engaged preservice teachers in the composition of literary analyses using digital tools. Despite this experience, preservice teachers who considered themselves successful in the conventional literary analysis essay reported uncertainty about composing in multiple forms. As Hundley and Holbrook (2013) observed, preservice teachers "struggle to juxtapose established notions of school texts with their experiences as digital composers" (p. 508).

While this current research provides insight into preservice teachers' experiences with digital tools for particular assignments, it doesn't provide insight

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into how preservice teachers' develop knowledge over time. The current study aims to provide a deeper examination of preservice teachers' pedagogical understandings of the teaching of writing using technology. Further, this contributes to the literature focused on how experiences in methods courses assist preservice teachers in constructing their philosophies of teaching writing. The results of this study address this dearth in research.

Methodology

To investigate preservice teachers' perceptions of using technology to teach writing and salient course experiences, we employed a mixed-methods study. This methodological choice allowed us to better understand our research problem from the collective strengths of both qualitative and quantitative methodologies (Creswell, 2015). More specifically, by relying on a quantitative pre and posttest survey, we were able to discern the individual and collective perceptions preservice teachers held about writing and the inclusion of digital tools. To acquire a more robust understanding of these perceptions, we also utilized qualitative data sources such as interviewing and student work. In essence, the mixed-methods design allowed us to understand preservice teachers' current perceptions of writing and technology as they were viewed through our sociocultural and multiple literacies lenses. Additionally, we were able to gain knowledge about the course experiences that would possibly follow the preservice teachers into their future classrooms.

Context

The first two authors each taught a section of Teaching Language and Composition at a mid-sized university in the midwest. It was the second course in a sequence of required courses as part of the Integrated Language Arts program. The Integrated Language Arts program was designed to prepare preservice teachers for licensure in grades 7-12.

Major course experiences and assignments were designed to aid preservice teachers in becoming critical and reflective teachers. Additionally, the goal of course experiences and assignments was to scaffold preservice teachers to become models of writing, specifically when using technology to compose. Throughout the course, preservice teachers kept digital writer's notebooks using apps/programs, such as Little Memory, Penzu, and Penmia. Preservice teachers also participated in a genre study, specifically exploring Flash Fiction. This writing assignment was then transformed into a #25wordstory and shared on Twitter. In addition, their flash fiction pieces were remixed as kinetic poetry and multimodal compositions. The intersections of poetry, visual, and social media

were again explored as preservice teachers engaged in the #walkmyworld online community that shared visual representations of identity, as well as poetry study and poetry writing. Finally, preservice teachers studied argumentative writing by determining a topic of interest, finding a text that reflected the topic, and creating a multimodal presentation that analyzed the effectiveness of this text in conveying important ideas about society.

While digital tools were central to composing in our methods course, they were also a critical source for communication, collaboration, and the acquisition of knowledge. For example, a class wiki was used as a space for preservice teachers to respond to course readings and Google Hangouts were used to have conversations with multiple authors. In essence, 21st century digital tools were more than singular activities. Instead, they acted as an integrated aspect of the course culture and experience.

Participants

Participants included 27 undergraduates enrolled in two sections of a Teaching Language and Composition course. All except two ranged between the ages of 20-21; the other two participants were in their late twenties. From these 27 participants, 11 participated in focus group interviews, and one participated in an individual interview (See Figure 1 for Focus Group Interview Questions). These five males and seven females provided additional data to help us better understand significant course features, experiences, and assignments. Focus group participants were selected from a convenience sampling, in terms of preservice teachers that were willing and able to participate in focus group interviews. Kari, who participated in the individual interview, only did so because she was unable to meet during the focus groups, but still wanted to participate in the research project.

Data Collection

Data collected included an adapted Likert-scale pre and posttest survey (Hutchison & Reinking, 2011; Kiuhara, Graham, & Hawken, 2009). With permission, we adapted Hutchison and Reinking's survey to include items focused specifically on the following constructs: (1) teaching competencies in writing and the integration of technology into writing instruction, (2) perceived importance of the use of specific technological activities in the writing classroom, and (3) obstacles to integrating technology into the teaching of writing. This survey was chosen because of its focus on teachers' perceptions regarding the integration of technology into classroom literacy instruction. Additionally, this

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survey was used as it had been originally established in order to maintain its reliability and validity.

We also adapted Kiuhara, Graham, and Hawken's survey. Additional items from this survey were integrated into our pre and posttest survey because of our specific focus on writing instruction. For example, we included questions regarding the importance of writing in teachers and students' lives and how preservice teachers define writing. In order to further maintain the validity and reliability of our pre and posttest survey, we utilized aspects of Kiuhara, Graham, and Hawken's survey as had originally been intended.

In addition to our pre and posttest survey, we conducted focus groups. We chose to use focus groups as our means for interviewing participants because of the inherent manner in which focus groups encourage interaction between participants on a concentrated topic of interest (Hatch, 2002). Out of our 27 participants, 12 participated in focus group interviews. Focus group interviews lasted approximately 20 minutes and were structured so each group received the same questions.

Data Analysis

Pre and posttest survey data were analyzed by running paired t-tests with two-tailed hypothesis testing. Qualitative data was analyzed using constant comparative analysis as data was read and reread to create codes and categories (Corbin & Strauss, 2008). Each author independently read data and created initial codes, such as responding to writers, technology, and opportunities. We then together engaged in more focused coding to define categories. For example, we read through the quotes representing technology and responding to writers to explicitly find statements when preservice teachers discussed how technology allows the writing process to be more collaborative. We then coded these statements as 'collaboration'. Additional codes included: digital writing journal, #25wordstory, and social media (see Figure 2).

Results

Quantitative Data Results

A paired sample t-test was conducted to analyze the extent to which preservice teachers' view (1) how they felt technology relates to writing instruction, (2) the extent they feel students benefit from integrating technology into writing instruction, and (3) their overall stance towards technology for writing instruction changed over the duration of the course (see Table 1). From pre and posttest survey results, it was found that preservice teachers reported a significant difference in the extent to which they used technology for personal

writing practices. Also, from pre to posttest, preservice teachers reported feeling more prepared to teach students the skills needed to be successful writers. In addition, specific tools important for writing instruction included emails, and publishing information on wikis and blogs. Preservice teachers' understanding of copyright issues and how to grade or assess students when they write with technology had a significant change as well. Post-test means were, on average, .51 points higher (SD=.58), which is a significant difference ($p < .01$). Though these survey results allowed us to understand what changes occurred during our methods course, the following analysis of qualitative data permitted us to better discern what aspects of the course influenced these changes.

Qualitative Data Results
Remixing Print Stories.

For three weeks during the semester, preservice teachers were engaged in a genre study exploring Flash Fiction. Flash fiction is a short, fictional story that is typically between 250-750 words (Batchelor & King, 2014). The purpose of introducing preservice teachers to this genre was to engage them in narrative writing that pays specific attention to word choice and important literary techniques through immersion in the genre by reading and responding to many mentor texts. Therefore, instructors and preservice teachers studied elements of craft unique to the genre, such as striking imagery, specific verb choice, pacing, and surprise endings. As the preservice teachers wrote in the genre of flash fiction, they strengthened their understanding of these elements. They also seemed to heighten their capacity to apply similar approaches to teaching writing to their future practice. At the end of the unit, preservice teachers transformed their flash fiction stories into a #25wordstory. #25wordstory is a participatory community on Twitter that shares short stories in 25 words or less (within the confines of the 140 Twitter character count). Each preservice teacher posted their #25wordstory to their Twitter account using the hashtag #25wordstory. After completing this activity, their flash fiction pieces were remixed as kinetic poetry. Kinetic poetry is poetry created with digital tools that creates arrangements of words that show movement on the page. Finally, preservice teachers used video, images, and audio to create multimodal compositions based on their flash fiction pieces. Interestingly, all of the preservice teachers reported this assignment to be a salient course experience.

Preservice teachers reported that their experiences with transforming print writing into multiple modes led them to consider the implications for students if they were to do a similar activity in their classrooms. For example, Kaitlin explained, "writing in different modes honestly affects your writing and how you

look at it from a different perspective." Similarly, Melody stated, "this was definitely one of my favorite things we did. It's an important skill to be able to convey the same message in multiple ways. And it was a fun way to develop that skill." Interestingly, other preservice teachers found that transferring modes changed the theme of their story. Michelle explained, "I had this big, ah-ha moment when we turned our written flash fiction pieces into a multimodal piece. I realized that through doing that the focus of my story was totally different when I was trying to tell it with pictures and video."

Other preservice teachers described the flash fiction remix as a "reflective activity." For example, Kari stated, that there was a significant amount of "thinking" that took place as they transformed and remixed their original pieces. For her, the benefit of remixing was that "it forced me to think about my language."

Their experience with remixing flash fiction provided preservice teachers an opportunity to consider implications for students and teaching writing. Michelle explained, "it would make students think about their own writing. This makes students think about how to get the point across in 25 words." Similarly, Jack said, "it would make students think about their learning." Dan explained the benefits of introducing students to a range of genres, and ways to write. He shared, "I definitely see where using social media can be helpful. Like the #25wordstory. I really like the idea of helping students understand that a story doesn't have to be this super long thing, like you can tell a story in a simple 25 words."

Online Journaling Apps.

Preservice teachers were asked to write during every class period using an online journaling app, such as Penzu, A Little Memory, or Penmia. The act of routinely writing in their online journals seemed to reinforce the importance of writing on a daily basis as preservice teachers reported the benefits of having many opportunities to write. For example, Michelle discussed the importance of students having the opportunity to write. She explains, "just write, because writing really is such a cathartic thing. I really want to give my students that opportunity to just write. And, to write and not worry about what "their" they use." Sam shared a similar belief in the importance of regular opportunities to write. He stated, "I think having them write as much as possible is a good thing. You can see their growth throughout the year."

In addition to the importance of providing students with opportunities to write, preservice teachers alluded to the importance of sustaining the habit of writing themselves. When discussing the importance of having an online journal,

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Kari explained, "I noticed when in my field experience if I'm writing myself and sharing my work with my students they connect on a whole new level." For example, Jack stated that he learned teachers should be "constantly writing" as "teachers should be experts in their field." Jack later confirmed this sentiment when he stated, "...if you're teaching writing, students should see you writing."

Affordances and Tensions about Writing Instruction and Technology

Preservice teachers reported the affordances and tensions with using technology for writing instruction. One affordance was that they thought technology helped establish writing communities. For example, Michelle explained, "I really think that writing should be a lot more working together and actually working on writing as opposed to just turning in the assignment, and giving comments that students most likely won't read." Michelle continued, "writing with technology can be a lot more collaborative and interactive. It doesn't just have to be 'sit down at your computer and type.'" Similarly, Jack discussed how technology, such as blogs and online journals can create a community as people post responses to writing and provide feedback. He explained, "you get a sense of community and sharing. It's more collaborative, more helpful learning, even if people aren't critiquing your paper, they're just building confidence."

One tension some preservice teachers experienced was how to assess and grade multimodal compositions or compositions that included technology. Despite course readings, such as Kittle (2006) and Hicks (2013), preservice teachers still reported feeling concerned about grading and feedback. This apprehension may have been due, in part, to some preservice teachers' expectations of the course. Emma mentioned that before the course she thought, "we're going to learn how to grade papers-and then we're going to tell 'em what they did—didn't do right—or something like that." Mandy concurred stating, "I definitely had the mindset when I went into the class that it was going to be more like thinking about how to grade things."

Despite the emphasis on technology for writing and the positive response when discussing using technology for teaching writing, preservice teachers still seemed to view technology as an addition to teaching writing, not central to the composing process. For example, Jack stated that he didn't want to "rely" on technology for writing instruction. He stated, "I should rely on myself to teach, not technology to teach." Similarly, Michelle shared, "I don't want to sit down and say, 'how am I going to use technology.' I want it to be inspiration. I want to be like, 'oh that'd be really cool.'" Other preservice teachers viewed technology as simply a way to keep students engaged in writing. For example, Dan shared, "it

is a way to get the kids involved." Similarly, Mandy explained, "I think technology would change it up a bit. Using social media can be helpful for a lesson." For some preservice teachers, using technology for writing instruction was dependent on the genre they would be teaching or the school they would be teaching in. For example, Dan stated, "I understand how to use social media, how that can be incorporated. But I'm not sure how that can be incorporated into academic writing yet." Some preservice teachers viewed the experience as worthwhile but perhaps not necessary depending on their future schools. For example, Kari stated, "I think this is where education is heading. If we're student teaching next year and we get a school with no technology, fine. But if we get to a school that has a lot of technology and we hadn't had this training, we'd be in a mess." In these instances, preservice teachers' comments revealed that technology was context dependent and viewed more as a tool than an integral and seamless component to the act of writing.

Discussion and Implications

Lived experiences, where preservice teachers are immersed as student-participants of pedagogical practice, affected preservice teachers' efficacy and perceptions of their preparedness to teach writing. Both quantitative and qualitative data confirmed that salient course assignments appear to have strengthened students' perceptions of themselves as writers. This finding supports prior research demonstrating that methods courses can positively impact preservice teachers' beliefs about themselves as writers and their writing identities (Chambless & Bass, 1995/96; Gerla, 2010; Lenski & Pardieck, 1999). In addition to finding a positive influence in terms of personal writing abilities, this study also found preservice teachers' perceptions of themselves as writing teachers were positively affected. This is critical as teacher educators consider the course experiences needed to impact preservice teachers' views of themselves as writers and how that translates into their writing pedagogy.

One implication of this study is that English education courses must foster an adaptive composition pedagogy (Hundley & Holbrook, 2013) that flexibly responds to the rapidly changing means of composing. In the case of the participants in this study, immersion into these digital tools fostered this type of understanding about composing processes and seemed to shape their perceptions of instructional approaches that they would like to use in a classroom. As noted, one of these salient experiences was related to the act of publishing for an authentic audience in an electronic forum, for example, #25wordstory on Twitter. This was also evident in our quantitative data, as according to our statistical analysis, between pre and posttest surveys, preservice teachers felt that publishing

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information electronically would be important to their future writing instructional practices. It is important to recognize that technology, particularly social media, continues to redefine our notions of publishing and the ways people communicate their ideas. As preservice teachers continue to explore social media as an option for publishing student work, new beliefs and pedagogical practices will continue to evolve. It is essential that teacher educators use the space created within methods courses to not only explore these current trends but also to encourage curiosity and dynamic thinking for future possibilities.

Relatedly, implicit learning through immersion occurred as the preservice teachers experienced the learning environment created by their instructors. In the survey, preservice teachers reported that wikis and blogs were important to writing instruction. Each section of Teaching Language and Composition had a wiki, which was used to house course discussions, activities, and preservice teachers' learning logs (similar to blogs). Preservice teachers interacted on the course wiki and through the learning logs; however, during focus group interviews, preservice teachers did not discuss the wiki or learning logs as a salient course experience. This finding is significant in that it reinforces the idea that teacher educators' instructional approaches shape preservice teachers' beliefs and thoughts, even if not explicitly discussed as a salient course experience.

Although the quantitative data suggested preservice teachers had a better understanding of how to assess writing that included multimodal components, the qualitative data suggested that grading and evaluation of writing was still both a focus and a concern. This seemed to stem from their initial perceptions of what the course objectives would be. This also highlights that preservice teachers enter methods courses with ingrained beliefs about the teaching of writing (Morgan & Pytash, 2014). Based on this data, it is critical that methods courses focus not only on theory and practice, but also on the realities of today's classroom, such as grading and evaluation. These realities are even more crucial during the methods course because it is during this time that preservice teachers can begin to examine and redefine the beliefs and perspectives they need to bring to a 21st century writing classroom, which may be in stark contrast to deeply ingrained notions.

These findings and corresponding implications speak to the important role teacher educators and methods courses have in the lives of preservice teachers. Research has shown that methods courses, though limited in time, are a powerful means for aiding preservice teachers in constructing their theoretical and pedagogical lenses (Grossman et. al., 2000; Mahurt, 1998). Based on this, it is crucial that methods courses be designed and implemented strategically with a regard for self-efficacy and 21st century modes of literacy. By mentoring preservice teachers to view themselves and technology as critical constructs in the

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development of proficient writers, teacher educators can better situate preservice teachers for the teaching world in which they will enter.

The purpose of this study was to provide a broad examination of salient course assignments designed to explore how to use technology for the teaching of writing. While this study demonstrated aspects of growth, and preservice teachers were able to report course experiences that influenced their understanding of the teaching of writing, there were still issues and concerns to contend with. For example, many of the preservice teachers viewed technology as a way to simply engage students rather than a critical component to the teaching of writing. Although preservice teachers pointed to specific benefits of incorporating technology during writing instruction, they still viewed technology as an external construct, not as a fully integrated pedagogical component to the teaching and process of writing. This is consistent with other research findings that highlight how preservice teachers' deeply ingrained beliefs about literacy influence their experiences in methods courses and their ideas about future instruction (Kist & Pytash, 2015; Hudley & Holbrook, 2013). In other words, the inherent beliefs and experiences that preservice teachers bring to the teaching of writing can have a causal effect on the role technology plays in the teaching of writing. Preservice teachers that have experienced technology as an external construct of the writing process may be more apt to carry that same experience over into their own classrooms. Conversely, if preservice teachers have experienced technology as a fully integrated and critical component to the writing process, these experiences will construct a very different idea of what it means to be a teacher of writing. Regardless of what preservice teachers initially believe about the teaching of writing and the importance of technology within the process, it is evident that the time spent in methods courses is fundamental to exposing and challenging perceptions about what it means to be a writing teacher in the 21st century.

Conclusion

Preservice teachers have a limited time in which to construct their professional identities. Research has shown that methods courses are critical spaces in which teacher educators can guide preservice teachers towards forming identities that best meet the needs of today's students. For future writing teachers, this includes developing an understanding of the role technology plays in the writing process. By providing preservice teachers with experiences that challenge the notion of writing and what it means to be a teacher of writing, teacher educators can begin to redefine the deeply ingrained belief systems that preservice teachers inherently maintain. Additionally, by providing preservice teachers with experiences that use technology for writing, preservice teachers can begin to make

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decisions about how they will utilize specific pedagogical practices in their own classrooms. When preservice teachers are provided opportunities to experience writing through a multimodal lens and evaluate their roles as writing teachers, they will be better positioned to meet the demands of today's writing classroom.

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References

Applebee, A. & Langer, J. (2011). A snapshot of writing instruction in middle and high schools. *English Journal, 100*(6), 14-27.

Batchelor, K.E. & King, A. (2014). Freshman and five hundred words: Investigating flash fiction as a genre for high school writing. *Journal of Adolescent & Adult Literacy, 58*(2), 111-121.

Chambless, M. S., & Bass, J. F. (1995-1996). Effecting changes in student teachers' attitudes toward writing. *Reading Research and Instruction, 35*(2), 153-159.

Cope, B., & Kalantzis, M. (2000). *Multiliteracies: Literacy learning and the design of social futures*. London: Routledge.

Corbin, J. & Strauss, A. (2008). *The basics of qualitative research*. Thousand Oaks, CA: Sage Publications, Inc.

Creswell, J.W. (2015). *A concise introduction of mixed methods research.* Thousand Oaks, CA: Sage Publications, Inc.

Doering, A., O'Brien, D. & Beach, R. (2007) Infusing Multimodal tools and digital literacies into an English Education Program. *English Education*, *40*(1), 41-60.

Gee, J. (1996). *Social linguistics and literacies: Ideology in discourses.* London: RoutledgeFalmer.

Gerla, J. (2010). Madelyn, a preservice teacher becomes a writer. *Southeastern Teacher Education Journal, 3*(1), 131-140.

Grossman, P., Valencia, S., Evans, K., Thompson, C., Martin, S., & Place, N. (2000). Transitions into teaching: Learning to teach writing in teacher education and beyond. *Journal of Literacy Research, 32*(4), 631-662.

Hatch, J.A. (2002). *Doing qualitative research in education settings.* Albany, NY: State University of New York Press.

Hicks, T. (2013). *Crafting digital writing: Composing texts across media and genres.* Portsmouth, NH: Heinemann.

Hudley, M. & Holbrook, T. (2013). Set in stone or set in motion? Multimodal and digital writing with preservice English teachers. *Journal of Adolescent and Adult Literacy, 56*(6), 500-509.

Hutchison, A. & Reinking, D. (2011). Teachers' perceptions of integrating information and communication technologies into literacy instruction: A national survey in the United States. *Reading Research Quarterly, 46*(4), 312-333.

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Johnson, L. & Smagorinsky, P. (2013). Writing remixed: Mapping the multimodal composition of one preservice English education teacher. In R. E. Ferdig and K.E. Pytash (Eds.), *Exploring Mutlimodal Composition and Digital Writing* (pp. 263-281). Hershey, PA: IGI Global.

Kindle, K.J. & Schmidt, C.M. (2011). Outside in and inside out: Using a case study assignment in a reading methods course. *Teacher Education Quarterly, 38*(3), 133-149.

Kist, W. & Pytash, K.E. (2015). "I love to flip the pages": Preservice teachers and New Literacies within a field experience. *English Education, 47*(2), 131-167.

Kittle, P. (2006). *Write beside them*. Portsmouth, NH: Heinemann.

Kiuhara, S.A., Graham, S. & Hawken, L.S. (2009). Teaching writing to high school students: A national survey. *Journal of Educational Psychology, 101*(1), 136-160.

Lankshear, C., & Knobel, M. (2003). Implications of "new" literacies for writing research. Retrieved from ERIC database. (ED 478121).

Lenhart, A., Arafeh, S., Smith, A., Rankin Macgill, A. (2008). Teens, technology, and writing. Pew Internet & American Life Project, April 28, 2008. Retrieved from: http://www.pewinternet.org/files/oldmedia//Files/Reports/2008/PIP_Writing_Report_FINAL3.pdf.pdf

Lenski, S. D., & Pardieck, S. (1999). Improving preservice teachers' attitudes toward writing. In J. R. Dugan, P. E. Linder, W. M. Linek, & E. G. Sturtevant (Eds.), *Advancing the world of literacy: Moving into the 21st century* (pp. 269 - 281). Commerce, TX: Texas A & M University Press.

Mahurt, S. F. (1998). Writing instruction: University learning to first-year teaching. In T.Shanahan, F. V. Rodriguez-Brown, C. Worthman, J. C. Burnison, & A. Cheung (Eds.), *Forty-seventh yearbook of the National Reading Conference* (pp. 542-554). Chicago: National Reading Conference.

Morgan, D.N. & Pytash, K. E. (2014). Preparing preservice teachers to become teachers of writing: A 20-year review of research literature. *English Education*, 47(1), 6-37.

Perry, K. (2012). What is literacy? - A critical view of sociocultural perspectives. *Journal of Language and Literacy Education, 8*(1), 50-71.

Rish, R. (2013). Exploring Multimodal Composing Processes with Pre-Service Teachers. In Pytash, K.E., Ferdig, R.E., & Rasinski, T. (Eds.), *Preparing teachers to teach writing using technology* (pp.1-16). Pittsburgh, PA: ETC Press.

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The New London Group. (1996). A pedagogy of multiliteracies: Designing social futures. *Harvard Education Review, 66*(1), 60-92.

U.S. Department of Education, National Center for Education Statistics. (2010). *Teachers use of education technology in U.S. public schools: 2009* (NCES 2010-040). Retrieved from http://nces.ed.gov/fastfacts/display.asp?id=46

Werderich, D.E. & Manderino, M. (2013). The multimedia memoir: Leveraging multimodaility to facilitate the teaching of writing for preservice teachers. In R. E. Ferdig and K.E. Pytash (Eds.), *Exploring Mutlimodal Composition and Digital Writing* (pp. 316-330). Hershey, PA: IGI Global.

Table 1: Paired Samples Test

	Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference		t	df	Sig. (2-tailed)
				Lower	Upper			
Pair 1 To what extent are you skilled at using digital technology in general?	-.074	.616	.118	-.318	.169	-.625	26	.537
Pair 2 To what extent are you skilled at using technology for your personal writing practices?	-.519	.580	.112	-.748	-.289	-4.647	26	.000
Pair 3 To what extent do you feel prepared to teach students the skills needed to be proficient writers?	-480	.586	.117	-.722	-.238	-4.096	24	.000
Pair 4 To what extent are you skilled at using technology for teaching writing?	-.370	1.043	.201	-.783	.042	-1.845	26	.076
Pair 5 To what extent would you integrate technology into your future instruction?	.000	.764	.153	-.315	.315	.000	24	1.000

Paired Samples Test
Paired Differences

	Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference		t	df	Sig. (2-tailed)
				Lower	Upper			
Pair 1 Writing is an essential skill for students to have	.037	.192	.037	-.039	.113	1.000	26	.327

Paired Samples Test
Paired Differences

	Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference		t	df	Sig. (2-tailed)
				Lower	Upper			
Pair 1 To what extent do you feel the following activities would be important to your	-.074	.267	.051	-.180	.032	-1.442	26	.161

writing instruction? Creating a word document

	Mean	Std. Deviation	Std. Error Mean	Lower	Upper	t	df	Sig. (2-tailed)
Pair 2 To what extent do you feel the following activities would be important to your writing instruction? Emailing	-.423	.643	.126	-.683	-.163	-3.353	25	.003
Pair 3 To what extent do you feel the following activities would be important to your writing instruction? Gathering pictures online	-.037	.854	.164	-.375	.301	-.225	26	.823
Pair 4 To what extent do you feel the following activities would be important to your writing instruction? Creating multimedia presentations	-.222	.641	.123	-.476	.031	-1.803	26	.083
Pair 5 To what extent do you feel the following activities would be important to your writing instruction? Using online reference sites	-.115	.588	.115	-.353	.122	-1.000	25	.327

Paired Samples Test
Paired Differences

	Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference		t	df	Sig. (2-tailed)
				Lower	Upper			
Pair 1 To what extent do you feel the following activities would be important to your writing instruction? Publishing information on a wiki or blog	-.370	.792	.152	-.684	-.057	-2.431	26	.022
Pair 2 To what extent do you feel the following								

	Mean	Std. Deviation	Std. Error Mean	Lower	Upper	t	df	Sig. (2-tailed)
activities would be important to your writing instruction? Publishing information on a website	-.259	.813	.156	-.581	.062	-1.657	26	.110
Pair 3 To what extent do you feel the following activities would be important to your writing instruction? Communicating using instant messenger or other chat tools	.074	.829	.159	-.254	.402	.465	26	.646
Pair 4 To what extent do you feel the following activities would be important to your writing instruction? Collaborating online with others	-.154	.675	.132	-.426	.119	-1.162	25	.256

Paired Samples Test
Paired Differences

	Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference		t	df	Sig. (2-tailed)
				Lower	Upper			
Pair 1 I don't think technology is reliable	-.269	.667	.131	-.539	.000	-2.059	25	.050
Pair 2 I don't know how to use technology	-.111	.641	.123	-.364	.142	-.901	26	.376
Pair 3 I don't understand how to integrate technology into the teaching of writing	.154	1.084	.213	-.284	.592	.724	25	.476
Pair 4 I don't think technology fits my beliefs about student learning	-.077	.977	.192	-.471	.318	-.402	25	.691
Pair 5 I don't think I will have enough time to prepare for using technology	-.148	.718	.138	-.432	.136	-1.072	26	.294

Paired Samples Test
Paired Differences

	Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference		t	df	Sig. (2-tailed)
				Lower	Upper			
Pair 1 I don't think I will have enough time to integrate technology because of the amount of time required to prepare for high stakes tests	.000	1.041	.208	-.430	.430	.000	24	1.000
Pair 2 I don't believe technology integration is useful	-.185	.622	.120	-.431	.061	-1.546	26	.134
Pair 3 I don't understand copyright issues	.407	.971	.187	.023	.792	2.180 -	26	.039
Pair 4 I am concerned about what students are able to access online	.259	1.130	.217	-.188	.706	1.192	26	.244
Pair 5 I don't know how to evaluate or assess students when they use technology to write	.444	.847	.163	.109	.780	2.726	26	.011

Paired Samples Test
Paired Differences

	Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference		t	df	Sig. (2-tailed)
				Lower	Upper			
Pair 1 I don't think I will have time to teach students the basic computer skills needed for more complex tasks	.167	.963	.197	-.240	.573	.848	23	.405
Pair 2 Lack of access to technology	-.192	1.021	.200	-.605	.220	-.961	25	.346
Pair 3 Lack of time	.160	1.068	.214	-.281	.601	.749 -	24	.461
Pair 4 Lack of training								

| | .185 | .879 | .169 | -.162 | .533 | 1.095 | 26 | .284 |

Paired Samples Test
Paired Differences

	Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference		t	df	Sig. (2-tailed)
				Lower	Upper			
Pair 1 Choose the statement that best describes how you view technology as it relates to writing instruction	.130	.548	.114	-.107	.367	1.141	22	.266
Pair 2 To what extent do you feel that students benefit when they use technology to write?	-.077	.744	.146	-.378	.224	-.527	25	.603
Pair 3 To what extent do you feel that you benefit when you use technology to teach writing?	.040	.611	.122	-.212	.292	.327	24	.746
Pair 4 What is your stance towards using technology in the classroom to teach writing?	.077	.688	.135	-.201	.355	.570	25	.574

Figure 1: Focus Group Interview Questions

1. Discuss what you believe about the teaching of writing. *Possible follow up:* How has your prior experiences learning how to write shaped your beliefs?
2. Do you think about writing or writing instruction any differently now than before you started the course?
3. Are there any specific course assignments or readings that stand out to you as impacting you?
4. Do you imagine using that assignment in your future classroom? How would you adapt it? What are things you would have to consider when using that assignment?

T/W

Figure 2: Codes and Representative Data	
Code	**Representative quotations**
collaboration	"...writing with technology can be a lot more collaborative and interactive. It doesn't just have to be 'sit down at your computer and type."
digital writing journal	"I think having them write as much as possible is a good thing. You can see their growth throughout the year."
#25wordstory	"I had this big, ah-ha moment when we turned our written flash fiction pieces into a multimodal piece. I realized that through doing that the focus of my story was totally different when I was trying to tell it with pictures and video."
social media	"I understand how to use social media, how that can be incorporated. But I'm not sure how that can be incorporated into academic writing yet."
technology	"I think this is where education is heading. If we're student teaching next year and we get a school with no technology, fine. But if we get to a school that has a lot of technology and we hadn't had this training, we'd be in a mess."