PRE-SERVICE TEACHERS' ENACTING NEW LITERACIES TEACHING PRACTICE IN TECHNOLOGY-RICH ENGLISH LANGUAGE ARTS CLASSROOMS

By

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A DISSERTATION

Submitted to
Michigan State University
in partial fulfillment of the requirements
for the degree of

Curriculum, Instruction, and Teacher Education – Doctor of Philosophy

2019

ABSTRACT

PRE-SERVICE TEACHERS' ENACTING NEW LITERACIES TEACHING PRACTICE IN TECHNOLOGY-RICH ENGLISH LANGUAGE ARTS CLASSROOMS

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This study examined three interns, with plans to harness the available digital technologies in the classroom to facilitate engaging and relevant literacy learning experiences in their secondary English Language Arts (ELA) classrooms during their year-long internship. They entered placements where each student had 1:1 access to internet-enabled digital devices. Using a multiple-case study design and ethnographic methods, the study spanned 14 weeks in the spring of 2018. The process of planning, teaching, and reflecting was captured through participant observations, audio recordings of classroom occurrences, audio recordings of post-lesson debriefs, and 3 semi-structured interviews from each intern during the start, middle, and end of the study. The purpose of this study was to examine the enacted teaching practices using digital technologies of three secondary English Language Arts pre-service teachers.

Analysis across the cases suggested how and why the interns plied (or did not ply) new literacies in their teaching using digital technologies. Four essential themes emerged across the cases: to expand student notions of literacy, to meet the societal imperative for student competencies in digital literacies, by using discussion to facilitate student learning, and by advancing teaching practice into new territories of technology integration. Findings suggest that despite the interns' positive beliefs and values about technology integration and digital literacy, they plied new literacies in disparate ways and to varying extents across their internship.

This dissertation is dedicated to Amanda, Leslie, and Barb.
I am one of the many you inspire every day.

ACKNOWLEDGEMENTS

The completion of this dissertation was only made possible by the unwavering support and encouragement from the amazing people in my life. First, I give my thanks to my advisor and mentor, Dr. Doug Hartman. I always left your office recharged and excited to continue my work. Thank you for always making me feel capable and confident. My committee, Drs. Angie Calabrese-Barton, Jen VanDerHeide, and Vaughn Watson, was a true "dream team." Thank you for your generous guidance.

This dissertation would not be possible without Amanda, Leslie, and Barb. Thank you for allowing me to be a part of your teacher journey. I am indebted to the mentor teachers who graciously opened their classrooms to me. You are the most important teacher educators our new teachers encounter.

To my parents, Cathy and George, I am proud to be your daughter. Thank you for supporting me in every way a person can be supported. I would also like to thank Whitney, Alex, Justin, Elias, Melissa, Uncle Don, Aunt Kathy, Emma, Brittany, Mark, and Pat for being the best cheerleading section a girl could hope for. I must not forget to thank my fur babies Kinney and Cash Money for keeping my heart full.

My East Lansing friends deserve a special acknowledgement for all the countless ways they made my time at Michigan State University a true gift. Lisa, thank you for all the fun times. You will always be my graduate school bestie (Charles doesn't die in the end). Chris and Edward, thank you for being my graduate school confidant and Disney Bae in one amazing package. Thank you to Terry Edwards and Amy Peebles for the smiles and hugs; you truly made Erickson Hall feel like home.

Thank you. *Go Green!*

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CHAPTER 1: INTRODUCTION

I love my students. And I think some people would think that that's weird to say. Oh, you like them, or you respect them. But it's like, we as a society, this is outside of the classroom, as a society, we keep love for romance and for our family, and we don't tend to extend that out, and I think that that's an issue. But I think that if you're going to do this job well, you have to open yourself up to that, you have to love your job, you have to love your kids. Because then you can allow your kids to influence your job, versus you just coming and saying, "I like you. But, we're doing this. This is what's best for you. I like you, and this is what's best for you." Whereas you can say, "I love you. What is best for you?" (Barb, post-lesson-debrief, April 12, 2018)

Three interns embarked on their year-long internship with plans to harness the available digital technologies in the classroom to facilitate engaging and relevant literacy learning experiences in their secondary English Language Arts (ELA) classrooms. Amanda, Leslie, and Barb (all names and places are pseudonyms) entered placements where each student had 1:1 access to internet-enabled digital devices. Their propensity to teach with technology combined with their nuanced, sociocultural-leaning definition of literacy made them like-minded participants but unique-minded English teachers. Though they did not use the term new literacies in their everyday speech, the participants of this study enacted teaching practices that embodied, exemplified, and illuminated possibilities of new literacies. However, the process of planning, teaching, and reflecting on enacted teaching practice influenced the participants' vision and commitment to teaching with digital technologies.

Using a multiple-case study design and ethnographic methods, the study spanned 14 weeks in the spring of 2018. Each intern was responsible for planning, teaching, and assessing English classes under the supervision of her mentor teacher. The process of planning, teaching,

and reflecting was captured through participant observations, audio recordings of classroom occurrences, audio recordings of post-lesson debriefs, and 3 semi-structured interviews from each intern during the start, middle, and end of the study.

Problem Statement

Widespread access to the Internet and digital tools is changing the very nature of literacy. Together, they enable the immediate release and uptake of new technologies, requiring new literacy practices (Leu & Forzani, 2012), especially for 94 percent of children aged 3 to 18 who have a digital tool at home (e.g., a computer) and 61 percent who have internet access at home (KewalRamani et al., 2018). As a result, students' worlds are increasingly digitally mediated, particularly because their use of digital tools and online participation is driving what counts as literacy (Alvermann, Hutchins, & McDevitt, 2012). For example, children today consume information by reading online, watching video, or playing video games, rather than reading print texts or watching television. Furthermore, children today communicate with others through digitally mediated spaces (e.g., Facebook, Twitter, Snapchat) (Barone, 2012), rather than face-to-face, over the phone, or written letters. The overall effect, then, is that the literacy practices of today and tomorrow, often referred to as the new literacies (Leu, Kinzer, Coiro, Castek, & Henry, 2017) are in flux, changing based on the technologies that emerge and the ways in which students use them.

Schools, in response, have increasingly provided access to internet-enabled devices, and teachers have increased their use of these technologies in their teaching. The most recent data available indicates that the ratio of students to an internet-enabled computational device decreased from 6.6 in 2000 to 3.1 in 2008 (Snyder, de Brey, & Dillow, 2018), meaning more students had access to devices. Furthermore, in 2008, 97 percent of teachers reported having one

or more computers in their classroom (Gray, Thomas, & Lewis, 2010). In the same report, 40 percent of teachers reported using technology often, and 29 percent reported using technology sometimes. While a similar study has not been conducted since, general indicators suggest that student access ratios continue to decrease and teacher technology use continues to increase (Zheng, Warschauer, Lin, & Chang, 2016). Therefore, to keep up with the changing literacy practices of digital youth, teachers of literacy must be ready to use technology in their teaching.

Increases in student access and teachers' use of technology are partially a response to educational policies at all levels. At the national level, the U.S. Department of Education released the National Educational Technology Plan (NETP) in response to the Activities to Support the Effective Use of Technology (Title IV A) of Every Student Succeeds Act, authorized by Congress in 2015 (Office of Educational Technology, 2017). The NETP serves as a "vision and plan for learning enabled by technology" (p. 3) and calls for equity in access to educational technology for all students. At the state level, the Common Core State Standards, currently adopted by 42 states, promote college and career readiness through standards requiring students' growth in digital literacy skills across all subject areas (National Governors Association Center for Best Practices Council of Chief State School Officers, 2010a). At the district level, most districts have policies that commit to increasing student access and teacher use, with statements like, "the Board provides Education Technology so that students can acquire the skills and knowledge to learn effectively and live productively in a digital world" (Licking Valley School District, 2017, p. 70). Specific to literacy and English Language Arts, professional organizations like the National Council of Teachers of English (NCTE) have designed policy statements like the Framework for 21st Century Curriculum and Assessment (2013), which outlines the importance of digital literacy, stating that "technology has increased the intensity and complexity

of literate environments… demand[ing] that a literate person possess a wide range of abilities and competencies, many literacies" (National Council of Teachers of English, 2013, para. 2). As all these policy documents suggest, technology integration in the classroom is closely tied with the literacy needs of all students. Despite these visions, standards, and frameworks, a gap between the use of and access to technology in schools and the use of and access to technology at home remains. In other words, technology use and access in schools is lagging behind the technology use and access documented in U.S. homes.

The preparation of future teachers has also changed because of the greater need for teachers to use and have access to technology in their classrooms. Teacher education programs (TEPs), for instance, are now expected to prepare pre-service teachers (PSTs) for technology integration. Two accreditation organizations--the Council for the Accreditation of Educator Programs (CAEP) and the Interstate New Teacher Assessment and Support Consortium (INTASC)--have standards that require PSTs to demonstrate technology skills and knowledges across the areas of professional learning, instructional strategies, and assessment (Council of Chief State School Officers, 2011). Further, the International Society for Technology in Education (ISTE) Standards for Educators specify that teacher use of technology be held to a high standard across multiple areas of practice, including leadership, instruction, collaboration, and assessment (International Society for Technology in Education (ISTE), 2017). Taken together, demand is high for teacher education programs to provide PSTs with a quality education on effective technology integration.

To prepare teachers for the efficacious integration of technology in the classroom and to meet accreditation requirements, TEPs have: (a) created stand-alone courses, (b) integrated technology into methods courses, and (c) integrated technology into the field experience. The

most recent data available indicate uneven progress in this regard. Of the 1,439 4-year, degree-granting TEPs that participated in a nationwide study, 51 percent offered stand-alone educational technology courses, 94 percent integrated teaching educational technologies in the methods courses, and 71 percent integrated it during the field experiences (Kleiner, Thomas, & Lewis, 2007). Interestingly, only 57 percent of TEPs reported using "technology tools for enhancing or enriching classroom instruction" to a major extent, and only 40 percent reported doing such to a minor extent (p. 38). While one would expect more widespread integration by TEPs since 2007, recent barriers to preparing PSTs for technology integration have been well documented. These barriers include a lack of system-wide technology integration across programs (Bakir, 2015), lack of modeling from faculty (Adamy & Boulmetis, 2006; Semiz & Ince, 2012), inappropriately designed performance tasks (Kimmons, Miller, Amador, Desjardins, & Hall, 2015), and lack of transfer to early career teaching (Brenner & Brill, 2016). While the current literature examining PST's learning to integrate technology in TEPs is rich, little has been conducted on how PSTs integrate technology during the internship. Many studies have focused on stand-alone technology courses or approaches that integrate technology learning across the entire TEP. For the most part, these studies focus on PST's beliefs about and intentions to teach with technology.

While TEPs have worked to appropriately prepare teachers for technology integration, only a small number of studies have looked specifically at preparing teachers to teach with new literacies. A need remains for new literacies to be integrated into subject-specific education courses (Draper & Wimmer, 2015) and for literacy courses and ELA courses to integrate new literacies into literacy instruction courses (Causarano, 2015). Several studies have looked at new literacies instruction in TEPs, though the courses were primarily graduate-level for in-service teachers (McVee, Bailey, & Shanahan, 2008; Wiebe & Smith, 2016; Zoch, Myers, & Belcher,

2017). An even smaller number of studies have examined or theorized on PSTs new literacies instruction in TEPs (Kajder, 2007; McPherson, Wang, Hsu, & Tsuei, 2007; Rosaen & Terpstra, 2012). As a result, more research is needed to understand ELA PSTs exposure, understanding, and implementation of new literacies instruction in teacher education courses.

Purpose Statement

The purpose of this study was to examine the experiences and perceptions of three interns during their year-long internships as they plan, teach, and reflect on their teaching practice in secondary ELA classrooms in the Midwest. Amanda, Leslie, and Barb expressed an interest in teaching English with digital technologies prior to the study, and each were assigned a placement with a 1:1 computing program over five years old. Furthermore, the interns' mentor teachers were familiar with and had experience teaching with technology. According to the Technology Acceptance Model (TAM), intentions or convictions to use technology are not reliable indicators of actual use, as the decision making is complex and dependent on social and context-specific variables (Davis, 1989). Furthermore, recent research indicates that factors such as young age, advanced knowledge of technology, and positive beliefs about technology all positively influence the use of technology in teaching (Celik & Yesilyurt, 2013; Fluck & Dowden, 2013; Holland & Piper, 2016; Sang, Valcke, van Braak, & Tondeur, 2010). The participants of this study are young interns, sharing a commitment to teach with technology and varying levels of technological knowledge. As these factors indicate a positive influence on the use of technology in teaching, there was a high probability that the interns would use digital technologies in their teaching.

The ethnographic methods employed in the study allowed for rich descriptions of the enacted teaching as well as the interns' perceptions of actual and intended teaching practice. The

study of interns' enacting of teaching with digital technologies has implications for teacher education programs seeking to improve technological integration in field experiences. Furthermore, this study contributes to the limited literature base of *actual enacted* new literacies teaching practice, including perceptions of enacted and intended teaching practice

This study addressed the gap in the literature of how PSTs integrate technology once they enter the internship, including planning, teaching, and, reflecting under the supervision of a mentor teacher. Specifically, the purpose of this study was to understand how three secondary ELA interns, who expressed a prior interest and desire to teach with technology, enacted teaching practices using digital technologies and plied new literacies in their classrooms during a one-year internship.

Theoretical Framework

New Literacies and Technology Integration

Building on Shulman's (1987) work on pedagogical content knowledge, Koehler and Mishra (2009) suggested that technological knowledge combined with pedagogical and content knowledge is the key to effective teaching with technology. In other words, the use of technological tools in the classroom must be carefully considered in tandem with the content being taught and the pedagogical method being employed. Technological tools are, therefore, not pedagogical techniques or content knowledge in and of themselves; rather, technological tools support instruction to make learning more efficient, effective, and engaging for learners (Kilbane & Milman, 2014).

Technology can and does inevitably change the way pedagogical techniques look and the way content knowledge is taken up by students. For example, in the past, a synthesizing of texts meant utilizing print sources to answer a research question followed by the writing up of a

research report in an ELA class. Today synthesizing looks more like re-mixing of multimodal texts. The writing up of a research report, changed based on audience and purpose, may look more like a blog or a public service announcement. These changes are made possible through technologies, and all are now relevant based on the changing nature digital youth interact with these technologies.

This study draws on a socio-cultural approach to literacy. The New London Group (1996) proposed that literacy is propelled and changed by social practice, denying that literacy is static. Referred to by Gee (2000) as *social languages*, these languages are "used to enact, recognize, and negotiate different socially situated activities" (p. 413). Cultural and literacy practices, used by different social and cultural groups, make up their *literacies*; cultural and social practices are made plural to account for the many ways people read, write, and communicate (Gee, 2010). Gee coined the term New Literacies Studies (NLS), which "argued that literacy was not primarily a mental phenomenon, but, rather, a sociocultural one…it was about ways of participating in social and cultural groups – not just a mental achievement" (Gee, 2010, p. 166). The rapidly changing and ubiquitous nature of technology changes the cultural and literacy practices of groups; therefore, technology changes the literacies of social and cultural groups. New literacies studies, also referred to as simply *new literacies*, examine the ways technology influences and changes literacy practices (Leu, Kinzer, Coiro, & Cammack, 2004). Because the definition of technology is historically rich and broad, I borrow from the perspective of Hartman, Hagerman, and Leu (2018) and have constrained my definition of technology to that of digital technologies, including digital internet technologies.

New literacies, as a result, are made visible through the activities done in the classroom. Examples of these activities include blogging, podcasting, text messaging, online

reading/consuming, social networking, composing digital stories, self-publishing, re-mixing text, collaboration in digitally mediated spaces, animation creation, and multimodal compositions. These activities, done alone or in countless combinations, form larger themes of new literacies, representing the overarching themes that define the term. Though Leu and Forzani (2012) would argue that these themes are ever changing as literacy practices change, common themes have emerged as researchers have examined new literacy practices. Examples of these themes include digital composing, digital (global) communication, critical literacy development, collaborative problem solving, cognitive pluralism, usage of multiple forms of representation, and diversified expression. Themes of new literacy practices and the activities that make these practices visible are summarized in Figure 1.

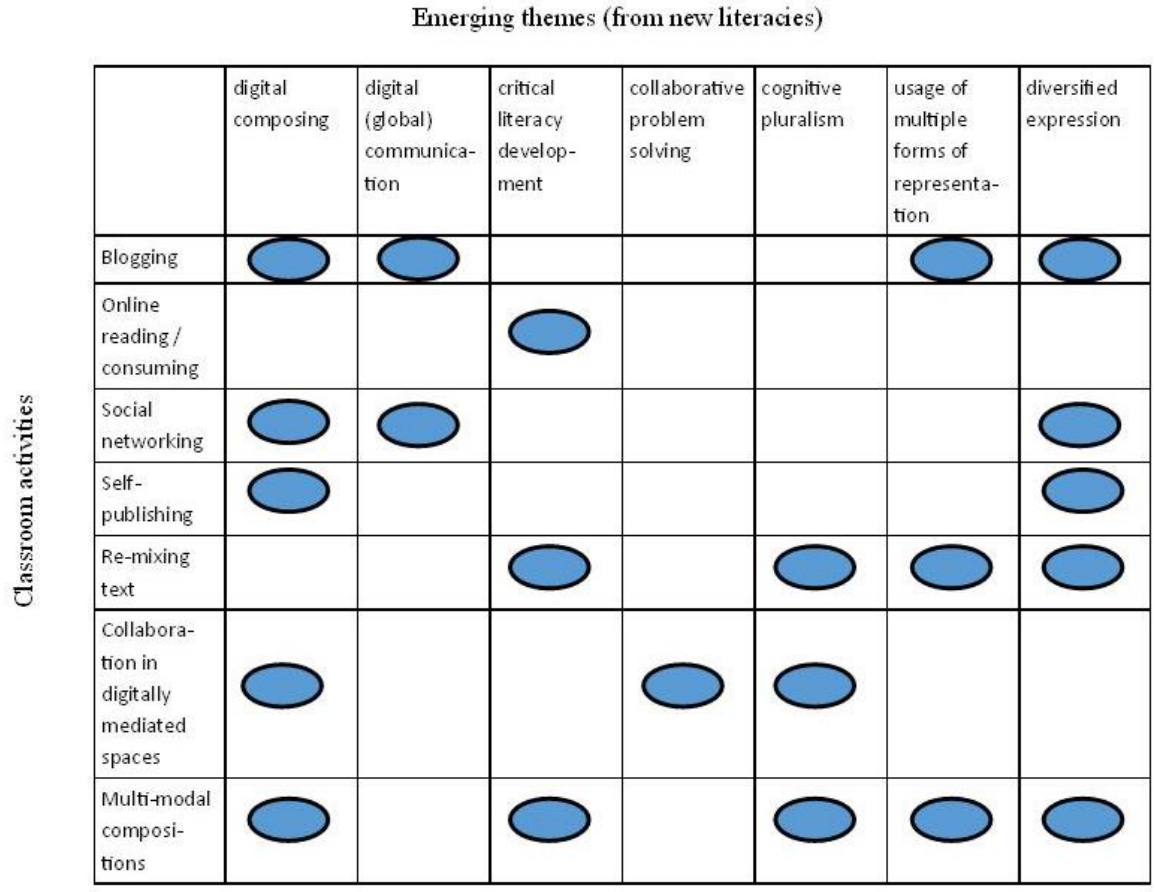

Figure 1. Summary of the themes of new literacies and classroom activities.

The blue circles indicate overlap among emerging themes and classroom activities. For example, the classroom activity of blogging embodies four themes of new literacies: digital composing digital (global) communication, usage of multiple forms of representation, and diversified expression.

Practice of Teaching

The study employs the term *teaching practice* to describe the moment-to-moment teaching observed as well as the debriefs with interns about their teaching. A *practice* is a socially constructed activity that cannot be isolated from its "socially material world" (Chaiklin & Lave, 1996, p. 5). More specifically, Chaiklin and Lave (1996) define a practice as "human practices at the level of concrete interactions of individuals acting in a meaningful social context" (p. 378). In other words, relations of people acting in the socially material world depend on context. Since teaching is a practice in this sense, *teaching practice* therefore changes depending on the constantly adapting relations within the context of the classroom.

Grossman, Hammerness, and McDonald (2009) described teaching as "complex work that looks deceptively simple" (p. 273), and this definition can be applied to teaching practice. By its very nature, teaching practice is difficult to describe precisely, based on its complexity from the context and social relations involved. Earlier research defined teaching practice by the knowledges required (Shulman, 1986, as cited in Grossman et al., 2009), and such research overshadowed the complex work of "orchestrating instructional activities, and the relational work involved in creating classroom communities" (p. 273). Kennedy (2006) accounted for the complexity of teaching practice by describing 6 factors teachers attend to during moment-to-moment teaching and the thinking and speaking teachers do about their teaching: "(a) covering desirable content, (b) fostering student learning, (c) increasing students' willingness to

participate, (d) maintaining lesson momentum, (e) creating a civil classroom community, and (f) attending to the their own cognitive and emotional needs" (p. 205). Furthermore, teaching practice encompasses the contradictory work teachers do to accommodate the ideals society holds for teachers while maintaining the integrity of their own ideals. Teachers therefore sustain this complex practice by devising a "collection of ready-made responses to events" (p. 206). The definition of teaching practice, while complex, for the purpose of this study accounts for the complexity of practice and its dependence on personal relations.

Research Questions

This study used a multiple case-study design to answer the following questions.

- Q1: How do interns enact teaching practices in the classroom?
- Q2: How do interns use digital technologies to enact teaching practices in the classroom?
- Q3: How and why (if at all) do interns ply the new literacies made possible by digital technologies when they enact teaching practices in the classroom?

CHAPTER 2: LITERATURE REVIEW

New Literacies

Literacy is deictic; as information and communication technologies continuously change, new literacies emerge (Leu & Forzani, 2012). New literacies are not just new here in the present but will continue to be new each day into the future. Street (2003) asserted that when digital literacies and other multi-literacies intersect with multiple literacies defined by social practices, new ways to communicate realities result. Text messaging, instant messaging, blogging, writing fan fiction, podcasting, social networking, and crafting game scripts are examples of the myriad of digital literacy practices changing what counts as literacy (Alvermann et al., 2012). As literacy practices change, beliefs about literacies change to include new ways of participating in a digitally mediated age, such as new ways of participating and communicating that rely on self-publishing, re-mixing texts, and global collaboration (The New London Group, 1996).

New literacies are ever changing and continuously redefined within temporal and spatial contexts, therefore making it difficult to build theory about it that could be used to aid teachers in incorporating new literacies into their classroom. Leu et al. (2017) proposed a dual theory of new literacies to solve this difficulty, defining new literacies on two levels: lower case new literacies and uppercase New Literacies. Lowercase new literacies address the specific areas and contexts of new literacies. Uppercase New Literacies address the emerging understandings resulting from the collective lowercase new literacies. Theories of New Literacies have emerged from consistent and common patterns of findings. The Internet is the 21st century's defining technology for literacy and learning.

Although it is unproductive to parse out the nuanced differences between the terms new literacies and digital literacies, O'Brien and Scharber (2008) addressed the need for people to be

digitally literate. Digital tools enable the understanding and representation of ideas using a range of modalities. To be digitally literate, one must appropriately select modes and tools, while spatially and temporally juxtaposing multimodal texts to best represent ideas. Digital literacies, therefore, enable a bridging and complementing of traditional texts and media texts. Such an approach requires the control of literacy to be given back to students and away from the teacher (Agnello, 1996). Digital literacies therefore have implications for teaching practice.

Since new literacies earliest inception, coined the New Literacy in previous decades, calls have gone out for changes in classroom practices and research on new literacies. Ross and Bailey (1994) warned against erroneously holding on to old literacy practices. Curtis (1978) called for the incorporation of mass media, advocating against fear of the unknown results of large quantity consumption of media. Researchers have called for changes in literacy research methods and epistemologies (Duke & Mallette, 2001) and the study of different areas of new literacies (Moje, 2009). Alvermann et al. (2012), however, found that digital literacy practices in school are not keeping pace with the digital practices students experience in their lives at large.

Many have attempted to understand the resistance of uptake for the ideas and practices of new literacies. Bartlett (2008) found the opportunities afforded by literacy are dependent on the types of literacy programs made available to students. Schools offering little to no opportunities to work with digital tools cannot foster digitally literate and digitally critical citizens. As a result, studies examining how digital literacy is used in ways that are conditioned by social and cultural forces are needed. Leu et al. (2011) argued that misalignments in policy and assessment impedes teachers' ability to prepare students for digital literacy. The seemingly inflexible structure of the school day and the inconsistent access to technology in schools are further impediments to this preparation (O'Brien & Scharber, 2008).

New Literacies in the Classroom

Young people's social networking, reading online, and streaming video content outside of school has increased while use of print texts outside of school has shown a steady decrease since 1999 (Kaiser Family Foundation, 2010). Although teachers may use digital technologies in their classroom, the focus of instruction is likely to be out of sync with what a student may encounter when they produce or use a digitally mediated text outside of school (Rideout, Foehr, & Roberts, 2010). This lack of focus is one of Leu et al.'s (2011) misalignments that hinder teachers' ability to prepare students for digital literacy. Quinlan and Curtin (2017) suggested, particularly in ELA classrooms, a static curriculum and lack of cohesion to digital lives expands the gap between adolescents' in and out of school identities. Moje and Ellison (2016) called for shifting literacy learning to the digital, particularly beyond the primary level, and expanding literacy learning to outside of school to address the misalignment of school and home (digital) literacies.

Researchers have examined the ways in which teachers have incorporated new literacies into their classrooms and have developed many recommendations about best practices. Alvermann et al. (2012) outlined digital literacy practices that young people found motivating, including fan fiction and video games used as digital texts, recommending that these digital texts be used for podcasting, creating Lego animations, blogging, or creating digital stories. They warned, however, that for these practices to be motivating within specific contexts, teachers must become familiar with the literacy practices of their students. Kist (2002) described a case where an interdisciplinary program known as Art Colloquium represented the principles of new literacies in its curriculum. The program, where the classrooms were set up like studios, honored

the principle that a new literacies classroom allows for all forms of representation, giving students the freedom to read and write in a variety of ways.

While teaching new literacies require attention to teachers' developing technological knowledge, teachers should consider the demands on content and pedagogical knowledge. For example, Karchmer-Klein and Shinas (2012) suggested that new literacies require new considerations for assessment. Teachers must account for digital natives' developing technological knowledge as well as their mastery of content. The complexity of new literacies makes this particularly challenging, as digitally mediated reading and writing adds to this complexity. Lapp, Moss, and Rowsell (2012) suggested that teachers must co-construct knowledge with their students, have an expanded notion of text, and be critically literate themselves.

Barone (2012) suggested that new literacies-focused classrooms motivate students through the use of digital tools, but they also empower students as they work individually and in meaningful collaboration. Kist (2000) recommended that students be highly engaged in their work, and evidence of this engagement should be palpable. According to Tierney, Bond, and Bresler (2006) when students are engaged as teams around digital literacies, they learned new ways to explore and share ideas. Students can engage in enhanced explorations of their world through new digitally mediated genres.

New Literacies in the ELA Classroom

Online reading and research are the cornerstones of learning today. However, students' online reading skills are limited and are relatively unskilled at critically evaluating online sources (Leu, Forzani, Timbrell, & Maykel, 2015). Critical literacy skills include a student's ability to deconstruct dominant texts, in print and digitally, and to create critical texts promoting social

justice (Morrell, 2005). Students can explicitly discuss symbol usage in text (Kist, 2000) and the role of language and literacy in promoting or disrupting cultural power relations (Morrell, 2005). These skills are a part of ELA classrooms and included in literacy standards in the Common Core (National Governors Association Center for Best Practices Council of Chief State School Officers, 2010b).

The reading of texts online for the purpose of new literacies reading instruction has been studied in ELA classrooms, including primary grades. Reading on digital devices such as iPads or e-readers have been found to be intrinsically motivating and lead to more reading engagement and comprehension (Brown, 2016; Cardullo, Zygouris-Coe, & Wilson, 2017; Simpson, Walsh, & Rowsell, 2013). New literacies require teachers to value new forms of text and expand the notion of text to include those that may be motivating for students, such as young adult literature, film, digital texts, and images (Clark & Marinak, 2011). For example, Méndez, García-Pernía, and Cortés (2014) used video game and virtual spaces as texts, where students could both read and contribute to the ever-changing digital text. Also, popular culture websites can be useful for critical literacy analysis, combining the essential skill of critical literacy with engaging texts (Kesler, Tinio, & Nolan, 2016). Other studies of the area of reading with digital technologies have considered the supports such technologies provide to struggling readers. Henry, Castek, O'Byrne, and Zawilinski (2012) found that readers strategized with peers to enhance reading comprehension through coaching and sharing. Struggling readers were therefore posed as experts in the reading of digital texts.

Studies examining multimodal composition and digital writing in ELA classrooms, as well as primary grades and other secondary content areas, provide insights into new literacies writing instruction. Multimodal writing can be empowering for students as they display their

identities and create new knowledges through multimodal compositions such as iPoetry (Curwood & Cowell, 2011), class blogs (Morgan, 2015), wikis (Tarasiuk, 2010), screen casting (Gormely & McDermott, 2011), hyperlink stories (Bailey, 2009), multimodal performance art (Gallagher & Ntelioglou, 2011), and dramatic video (Costello, 2012). In order to redesign writing instruction in the ELA classroom, Schwartz (2015) worked with an ELA teacher to design a Storywiki unit, analyzing the students' wikis using funds of knowledge theory to examine the students' processes, understandings, and considerations of digital composition. Bogard, Consalvo, and Worthy (2018) claimed that texts made by students were examples of "deep learning" (p. 3). Students afforded the opportunity to create their own texts used writing strategies for their own uses, rather than the prescribed uses of school. The instructional designing teachers do for new literacies writing instruction produces new challenges, as Dooley, Ellison, Welch, Allen, and Bauer (2016) found that teachers struggled to assess collaborative digital compositions and new literacies employed by their students.

Beach (2012) addressed the gap between students' out-of-school literacy practices, authentically centering around digital texts and the contrived literacy practices in ELA classrooms. Beach suggested a "remediation" (p. 46) of print-based literacies and newer digital literacies, calling for ELA teachers to combine these texts in order to engage students in responding to and creating new texts. Beach recommended that teachers identify the affordances and challenges of using digital tools. Furthermore, teachers should model and scaffold for students the use of digital tools and design authentic and engaging contexts within which students can collaboratively make textual meaning. The study of new literacies is as relevant and desirable as ever (Morrell, 2005); while Leu et al.'s (2017) Dual Theory has provided the

research field with a framework upon which to build theory, more research is required to understand the ever-changing nature of literacy.

Technology and Teacher Education

The body of research examining teacher education programs' (TEPs) integration of information and communication technologies (ICT) is extensive. Overall, the research takes on one of two foci: (1) what and how PSTs learn about technology integration in courses and field placements, or (2) the beliefs, skills, and knowledges PSTs develop after the completion of a program (Ottesen, 2006). Though there is no argument against TEPs preparing teachers to teach with technology, the method with which a program should do so has been contended. Most agree that TEPs should integrate technology across all levels of a program, from foundational courses, through methods and fieldwork, and through the internship (Ottenbreit-Leftwich, Glazewski, & Newby, 2010). Researchers advocate for technology integration to be on a "continuum rather than separate entities" (Wang & Chen, 2006, p. 45). Currently, four models for teaching technology integration in TEPs are utilized: (1) a stand-alone technology course, (2) a foundational technology course, an advanced technology course, and technology teaching infused into methods curses, (3) technology infused into methods courses only, and (4) technology infused into methods and field experiences (Wang & Chen, 2006). Despite a wide breadth of research, there is no agreement of the best model for teaching PSTs about technology integration (Kay, 2006).

In 1999, the U.S. Department of Education started the Preparing Tomorrow's Teachers to Use Technology (PT3) grant program, providing TEPs grants to increase technology infrastructure and technology use by faculty and students (Wright & Wilson, 2011). Research on PT3 grants formed the foundation of the literature on technology integration in TEPs. The PT3

initiative “integrated technology more fully into the curricula and experiences for pre-service teachers” (Groth, Dunlap, & Kidd, 2007, p. 363).

For example, Adamy and Boulmetis (2006) used PT3 grant funding to find that faculty members who modeled technology integration positively impacted PSTs confidence in teaching with technology. Also using PT3 funds, Duran, Fossum, and Luera (2006) developed and tested a model for technology integration known as MITTEN. This model had PSTs take core coursework in educational technology, as well as participate in clinical experiences. Use of the MITTEN model led to an increase in the quality of end of program portfolios and PST’s increased “confidence and competence” (p. 52) with technology. In a case study of interns, mentors, and instructors, Groth et al. (2007) examined how participants worked with technology together in a literacy methods course. Their PT3 funded study found that the interns learned about more technology options, though they did not see themselves using technology for literacy instruction. Longitudinal PT3 studies, though uncommon, have tracked the long-term impact of technology instruction during grant funded PT3 initiatives (Wright, 2010; Wright & Wilson, 2011). Such studies found that teachers continued to use basic skills learned during their TEP, but only those that utilized continued professional development used tools and strategies beyond what they learned during their program.

With over 400 grants awarded (Hall, Fisher, Musanti, & Halquist, 2006), the PT3 initiative no doubt paved the way for TEPs to integrate technology. The impact of the initiative continues to be examined. Cohen, Pelligrino, Schmidt, and Schultz (2007) described three case studies of TEPs’ continued use of technology after PT3 funding was done. They found that the technology integration remained at the core of the TEPs’ mission, suggesting that technology integration will be sustained. Finally, in a literature review of 34 PT3 grants, Hall et al. (2006)

found the following indicators for successful technology integration: quality of leadership, administrative support from departments, available resources and personnel, and the amount of resistance from faculty to change.

Teacher Education and New Literacies

Draper and Wimmer (2015) called for new literacies to be incorporated into all subject-specific education courses in a coherent curriculum. They argued that not only is new literacies part of all disciplinary practices, but content-area classrooms are new literacies spaces. Causarano (2015) sought for changing literacy courses in TEPs to be based on new literacies. He suggested self-reflection and multiple literacies as a starting point to rethink literacy instruction in these courses. One might expect that, with the large body of research on the integration of technology into TEPs, examinations of new literacies in TEPs would be prevalent. Rather, only a small body of research explores new literacies in TEPs.

Several studies have explored new literacies in TEPs through online graduate-level courses taken primarily by in-service teachers. McVee et al. (2008) found that after a 15-week graduate course on new literacies, participants doubted their ability to use multimodal literacy practices in their classroom. Some participants found that multimodal literacy practices were not suited for certain students, specifically those from urban schools. One graduate level course on new literacies included a field component where teachers taught a summer writing camp (Zoch et al., 2017). Upon finishing the course and beginning teaching the next school year, participants continued to use technology but were less inclined to consider new literacies. Zoch et al. (2017) suggested foregrounding new literacies over technology when teaching such a course. Wiebe and Smith (2016) described the difficulties of one teacher educator attempting to design and implement a unit on digital and multiliteracies in a Master of Education program. Difficulties

included applying multiliteracies theory to the unit, thinking across literacy domains, and assessing literacies.

An even smaller number of studies exist exploring new literacies instruction during TEPs with PSTs. Kajder (2007) examined activities in a literacy course designed for all secondary education majors. Activities used included online discussions, weblogs for journaling, podcasts of literature circles, and digital stories. In another study, two teacher educators studied their own incorporation of new literacies into a K-6 literacy course for PSTs (Rosaen & Terpstra, 2012). PSTs were not able to fully integrate technology and new literacies into their planning, but their concepts of literacy were expanded. Finally, in a theoretical piece, McPherson et al. (2007) suggested three strategies that TEPs can use to incorporate new literacies into the curriculum: (1) authentic apprenticeship experiences in exchange with global peers, (2) structured and purposeful use of internet research, and (3) production and publication of ideas, creative works, reflection, and expression of voice.

Technology Integration Teaching Models

Stand-alone technology course. While it is commonly accepted that technology integration should be infused across an entire TEP, the stand-alone technology course "provides a foundation for pre-service teachers to develop technology proficiency" (Wang & Chen, 2006, p. 145). Stand-alone technology courses often use the TPACK framework, developed by Mishra and Koehler (2006). The Technological, Pedagogical and Content Knowledge (TPACK) framework provides teachers with a method to conceptualize their use of technology in the classroom. The framework added Technological knowledge (TK) to Shulman's (1987) Pedagogical Content Knowledge (PCK) framework. TPACK provides a strategy with which teachers can effectively plan technology integration, considering when to use technology, which

technology to use, and how to use technology to teach content-specific curricula. Research on stand-alone courses use the TPACK framework in both the curriculum taught and assessments given (Buss, Wetzel, Foulger, & Lindsey, 2015; Hsu, 2012; Semiz & Ince, 2012; Wilder & Jacobsen, 2010). One exception to this is the study by Kimmons et al. (2015) that used the Replace, Amplify, Transformation (RAT) model as the curricular foundation for a stand-alone technology course. One benefit to a foundational technology course includes helping PSTs from low-income backgrounds improve their knowledge around teaching with technology (An, Wilder, & Lim, 2011). It is important that stand-alone technology courses be given early in a program to build knowledge that can be applied throughout a TEP (Hsu, 2012).

Integrated technology instruction. Integrating technology throughout the methods and field experiences of a TEP "fills the gap between university courses and the real world… wherein they apply their technology skills and teaching methods to actual classroom settings" (Wang & Chen, 2006, p. 145). It is essential to lengthen the PSTs exposure to technology through methods such as modeling and hands-on activities (Belland, 2009). Toledo (2005) asserted that the goal of a TEP should be to embed technology into all educational courses. Ottenbreit-Leftwich et al.'s (2010) meta-analysis of technology integration in TEP's found 6 successful approaches: (1) information delivery, (2) hands-on technology activities, (3) practice in the field, (4) observation and modeling of faculty, (5) authentic experiences, and (6) reflections. In addition, a literature review evaluating strategies used to incorporate technology found several key strategies, including encouraging collaboration among PSTs, mentor teachers, and faculty, focusing on mentoring teachers in K-12 settings, and improving access to technologies (Kay, 2006).

Integrating technology in subject-specific methods courses yielded varying results, as they used differing methods of integration. For example, Keeler (2008) described a social studies methods course utilizing a technology-rich approach during instruction, including blog-based class communications, audio for feedback, and e-portfolio creation. In one physical education methods program, the level of PSTs' perceived TPACK improved because of faculty's role modelling of technology use (Baert, 2014). Dawson (2004) described one dual elementary and special education program requiring two technology courses and integrated technology throughout the rest of the program. Mitchell and Laski (2013) surveyed 204 math education methods instructors about their use of technology while teaching. While they did find educational technology important, the math educators surveyed reported not using technology to a great degree, suggesting a lack of technology integration in some math education programs. Haning (2016) surveyed 46 music education majors in 10 programs, finding that 43 percent did not feel prepared to use technology in their future teaching. Such variety in integration methods and results of instruction across subject-specific methods courses perhaps perpetuates the continued lack of agreement on any one method to integrate technology into TEPs.

1:1 technology programs and other new models. A small body of literature has examined a newer innovation in technology integration in TEPs: 1:1 computing or ubiquitous computing programs. These programs provide each PST with an internet-enabled computing device, such as a laptop or an iPad, to use for the entirety of their program, including coursework and field experiences. One special education 1:1 laptop program found PSTs increased their perceptions and positive attitudes about technology integration (Allsopp, Alvarez McHatton, & Cranston-Gingras, 2009). The program also improved the technology use of faculty. Donovan, Green, and Hansen (2011) used survey data to compare a 1:1 TEP program with a traditional

TEP. The PSTs enrolled in the 1:1 laptop program showed development in three TPACK areas, where non-1:1 laptop program PSTs showed no change overtime. Another program gave each PSTs a device and partnered with a local 1:1 computing school district, mirroring the technology use of the field placement with the technology use in the university courses (Donovan & Green, 2009). PSTs "gained valuable insights into what teachers in this [1:1 computing] environment actually do" (p. 53). In a 1:1 iPad program, Mourlam and Montgomery (2015) found that some PSTs reinvented their approach to teaching, while others did not change. Another 1:1 iPad program resulted in PSTs using technology positively in coursework but struggled to implement technology in field placements (Brown & Englehardt, 2017). PSTs encountered barriers such as mentors not using iPads, technical difficulties while teaching with iPads, and mentors that only used iPads in certain contexts.

Other various models have been suggested to define, enhance, or supplement technology integration in TEPs. These models include: authentic, performance based opportunities for technology integration (Cydis, 2015), partnering PSTs with a mentor teacher to aid in technology integration in the classroom as part of a service-learning project (Voithofer, 2005), pairing technology education and critical multicultural education (McShay, 2005), pairing TPACK and universally designed for learning frameworks to design teacher education courses (Benton-Borghi, 2013), aligning a TEP with a specific theoretical framework that impacts all aspects of a program (Demir, 2011), utilizing the MAGDAIRE model, a modified TPACK approach (Chang, Chien, Chang, & Lin, 2012), incorporating a curriculum derived from the design disciplines (Norton & Hathaway, 2015), and providing PSTs with online collaborative mentoring with a subject-specific mentor (Dorner & Kumar, 2016).

Evaluating Technology Integration in Teacher Preparation Programs

Researchers have considered the effectiveness of programs' technology integration through various forms of evaluation. One common evaluation method is surveying recent graduates of a TEP. Wake and Whittingham (2013) surveyed education majors upon graduation and found an increased comfort with technology tools. However, technology use reported by participants was teacher-centered, focusing more on delivering content over providing student-centered experiences in the classroom. Another method of evaluation is to examine the practices of faculty across a TEP. Bakir (2016) examined three different TEPs and found inconsistent technology integration across the programs. Barriers to technology integration included faculty attitudes toward technology, administrative and technology support, funding, and access to technology. Teclehaimanot, Mentzer, and Hickman (2011) explored their own program and found that faculty lacked confidence in integrating technology and did not see the benefits of using technology. The faculty members' perceptions resulted in little evidence of technology use in the PSTs end of program teaching portfolios. Research has suggested that an awareness of technology standards can have positive impacts on learning outcomes of PSTs (Lewis, 2015). However, when examining the level of explicit awareness of the technology standards among PSTs and faculty across a program, Lewis (2015) found that assignments and other hands-on practice with technology did not move beyond a basic level of understanding within the standards. Research on the outcomes of teacher preparation programs and their effectiveness to improve in-service teachers' technology integration is essential to understanding best practices for faculty and most effective program models.

Technology Integration During the Internship

Studies have explored interns use of technology specifically during the internship (sometimes referred to as student teaching). When considering the use of technology during the internship, researchers have taken up this work in three ways: observing and describing how interns used technology during the internship, examining how the mentor teacher impacts technology use, and surveying interns after their internship is over. Pope, Hare, and Howard (2005) studied PSTs during their student teaching and concluded that the PSTs did not apply what they learned about technology integration into their teaching. They surmised this was because of the university's reliance on a stand-alone technology course that is "not linked to real classroom situations or to the content area" (p. 573). Similarly, Ortega (2013) looked at 7 ELA interns' technology use during their internship. Interns in this study used one of two contradictory approaches to technology integration, a "tool for result," (p. 285) which is a non-integrated, tool-focused approach, or a "tool and result," (p. 285) which integrated the tools and pedagogy appropriately. Wright and Wilson (2009) observed 2 social studies interns and found that they relied on technology as classroom management support, rather than for teaching the content.

The impact of the mentor teacher's use of technology on the intern has been explored, though to a smaller extent. Francis (2017) described how 7 social studies interns, with the help of their mentor teacher, taught using 2 specific technology-based practices from their TEP coursework. Mentor teachers supported the interns in this work by providing resources, feedback, and being open to new practices. However, Francis also found that support from the mentor teacher did not sustain the practice of innovative teaching across the internship. In addition, Nelson (2017) explored how mentor teachers use of TPACK in the classroom impacted

the intern's use of technology. The study found that mentors with high TPACK scores influenced interns to want to use technology more, since they saw their mentor using technology frequently. The opposite was also true; mentors with low TPACK scores resulted in interns' infrequent use of technology.

The most frequently used method by researchers to understand how interns integrated technology during the internship has been surveying or interviewing interns upon or sometime after graduation. The results of these studies provide insights into best practices for technology integration within TEPs. Assigning interns technology-rich field experiences resulted in increased use of technology and a positive attitude toward teaching with technology (Dipetta & Woloshyn, 2009; Hammond, Reynolds, & Ingram, 2011; Hughes, 2013; Lux & Lux, 2015). On the other hand, placing interns in schools lacking technology can have a dampening effect on interns' enthusiasm to teach with technology (Dipetta & Woloshyn, 2009). Observing a mentor teacher in a technology-rich classroom promotes increased intentions to use technology (Tondeur, Pareja Roblin, van Braak, Voogt, & Prestridge, 2017), particularly if the intern has a traditional view of teaching rather than a constructivist view (Han, Shin, & Ko, 2017). It is important to note, however, that often, the interns' beliefs and perceptions on using technology in the classroom *before* entering the internship had a significant impact on their feelings about teaching with technology *after* the internship (Cullen & Greene, 2011). The importance of a technology integrated program, which starts technology training early, cannot be overlooked.

Pre-Service Teachers' Attitudes Toward Technology Integration

Though some studies have examined PSTs' technology integration in the classroom and very few have examined PSTs integration of new literacies, a robust body of literature exists on PSTs' attitudes toward technology integration. Most commonly, studies have found that young

PSTs tend to have positive attitudes toward technology but are inhibited in their technology integration for various reasons. The most common method of examining this phenomenon has been surveys. After surveying elementary PSTs on their knowledge and attitudes of new literacies, Ajayi (2010) found that the PSTs felt underprepared to teach multiliteracies and multimodality. Furthermore, the PSTs felt constrained by the school sites which led to less technology integration, though they all agreed that teaching new literacies was valuable. Cullen and Greene (2011), using a mixed methods approach surveying 114 PSTs and analyzing 67 written reflections, concluded that a positive attitude toward technology was the strongest predictor of motivation to use technology. Despite these positive attitudes, the PSTs struggled to integrate technology in meaningful ways. Similarly, Li, Worch, Zhou, and Aguiton (2015) used mixed methods and surveyed 76 PSTs before interviewing 6 individuals. They also found that PSTs with positive attitudes toward technology and strong computer skills self-efficacy led to a high use of technology, while finding that a low computer skills self-efficacy led to low levels of technology integration. Others suggest that PSTs are capable and confident of technology use in their everyday lives but lack the knowledge and confidence to integrate technology for teaching and learning (Kent & Giles, 2017; Özer, 2018). Finally, Kimmons and Hall (2016) surveyed 153 PSTs on their beliefs and values on teaching with technology and found that PSTs were willing to integrate technology under the guidance of their mentor teacher but felt unprepared for the complexity of teaching with technology and unsure of the long-term impact such teaching had for their students.

Still other studies have found that PSTs have positive attitudes toward technology integration but struggle to implement the technology in practice. However, these studies utilized a qualitative case study approach. Alexander and Kjellstrom (2014) examined how the internship

influenced first year teachers' technology integration. They explored seven cases of first year teachers and found that, while participants found it important to increase their knowledge of tools, they also struggled to integrate technology when confronted with context specific challenges, such as students not knowing the software. Similarly, Ortega (2013) examined 7 ELA PSTs, finding that some PSTs did not integrate tools effectively while others successfully paired the tool and the approach. After examining 22 cases of mathematics PSTs, Meagher, Ozgun-Koca, and Edwards (2011) found that PSTs benefitted from field placements in technology-rich environments, but participants felt they lacked training through methods classes and exemplary modelling of practice to effectively integrate technology.

Studies that found strong outcomes of technology integration in PSTs examined specific interventions or PST characteristics. For example, Hammond et al. (2011) examined specifically PSTs use of interactive whiteboards, determining that the access to tools and PSTs possession of positive feelings about technology and its impact on student learning led to consistent technology integration. Other interventions and factors leading to PSTs integrating technology were using two and three dimensional materials paired with technological tools (Orhan-Karsak, 2017), possessing constructivist teaching beliefs (Sang et al., 2010), utilizing field experiences with technology with first year PSTs (Sun, Strobel, & Newby, 2017), and studying millennial age PSTs (Sen & Ay, 2017; Spaulding, 2013).

Not all studies conducted with PSTs found participants possessed positive attitudes about technology integration or integrated technology in meaningful ways. Dinçer (2018) found, after surveying 712 PSTs across 5 universities, that PSTs lacked technology literacy knowledge and skills for teaching and learning, perhaps a result of a lack of in-depth technology education courses. Furthermore, PSTs that possessed strong technology literacy lacked the knowledge and

applications skills, resulting in difficulties applying technology literacy for teaching and learning outcomes. Gonzalez and González-Ruiz (2017) and Lemon and Garvis (2016) similarly concluded that despite using technology in their everyday lives, PSTs were unfamiliar with applications of technology for teaching and learning. Furthermore, Hsu (2013) reported that participants were "skeptical about the value that technology offers for their classrooms" (p. 42). On the other hand, studies have found that PSTs have limited or narrow technological knowledge in general, not just for educational applications (So, Choi, Lim, & Xiong, 2012; Valtonen, Kukkonen, Kontkanen, Mäkitalo-Siegl, & Sointu, 2018). Currently, research has found conflicting results on PSTs attitudes and knowledges about technology integration, perhaps a result of the social influences of context on practice (Chaiklin & Lave, 1996).

Lastly, studies seeking to understanding PST's planned future behavior to integrate technology have strong implications for TEPs. In other words, even if PSTs are unable to integrate technology effectively during field experiences, strong intentions to teach with technology may be an indicator of PSTs' gains in technological knowledge and skills. Using theory of planned behavior (TPB) to explain PSTs' acceptance of technology, Teo and Tan (2012) determined TPB to be a valid model to explain PSTs' intention to teach with technology. Fokides (2017) combined the technology acceptance model (TAM) and self-efficacy theory to determine that the intention to use technology in the future depended on positive attitudes regarding perceived usefulness of technology, ease of use, and computer self-efficacy. Also using the TAM, Parkman, Litz, and Gromik (2018) computer self-efficacy to be the best predictor of PSTs' intention to use technology in the future. Fluck and Dowden (2013) surveyed first year PSTs and found they intended to use technology more frequently in the classroom than they experienced as a student.

CHAPTER 3: METHOD

Study Design

Case Study

To answer the research questions, this study utilized a case study design employing ethnographic methods. Case study design is particularly useful to answer questions of "how" and "why" regarding contemporary phenomena (Yin, 2017). The questions of this study asked how and why PSTs enacted digital teaching practices and plied new literacies, making the choice of case study appropriate. When using this design, the role of the ethnographer is not to find the truth within a participant context; rather, the ethnographer seeks out the multiple truths in the lives of participants (Emerson, Fretz, & Shaw, 2011). Choosing a multiple-case study design allowed for in-depth exploration of the bounded spaces within which three pairs of participants were positioned. The bounded nature of the setting of this study, set in three classrooms, made case study design desirable (Creswell, 2011). Case studies are appropriate when exploring complex, real-life contexts (Yin, 2017). The type of case study was descriptive, rather than exploratory or explanatory (Yin, 2017), allowing for a systematic studying and describing of a phenomenon. I utilized a collective case study design in which multiple cases are described and compared to a topic of interest (Creswell, 2011). In other words, three cases of participant pairs within three different teaching contexts were compared. Multiple data sources collected across multiple contexts led to more robust findings and opportunities for data triangulation (Yin, 2017). Furthermore, case studies are a form of narrative (Flyvbjerg, 2006). The methods of data collection and sources enabled the telling of these cases' stories.

Participatory ethnography and community of practice. Researchers often use case studies when the context cannot be controlled (Creswell, 2011). I did not seek to control the

research sites, and I was a participant in the community space of the participants. To foster a relationship between myself and the participants and build trust, I co-planned and served as an additional mentor to the interns. My position as the intern participants' course instructor for the past two or three years contributed to my role as mentor to the interns. In addition to the case study design, this study utilized aspects of *participatory ethnography* and *communities of practice* (COP). These additional aspects allowed for constant collaboration among the participants and me, as I was a member of the classroom community.

Participatory ethnography uses the people of a community as part of an ethnographic study (Bannon & Ehn, 2012). But the design of cases for this study does not use participatory ethnography as a method; rather, I use it as an approach. The study is collaborative throughout every phase of the design. Interns and mentor teachers utilized the post-lesson debriefs particularly to achieve their own goals and outcomes. The production, ownership, and use of the knowledge from this study was democratically distributed across all participants and me.

Though the participants did not collect and analyze data to solve problems of practice, all data sources were made available to them. The mentoring of the interns by me was part of the *community of practice* (COP) established in the classroom during the study. However, one confine of participatory ethnographic case studies is that the researcher is not a member of the community, in the same way that interns and mentor teachers are members (Emerson et al., 2011). My presence as a researcher in the classroom space was that of an 'outsider,' in that I was not a stakeholder in the same way as the mentor teacher and intern.

I established COP among the intern, the mentor teacher, and me. The primary output of a community of practice is knowledge (Wenger, McDermott, & Snyder, 2002). In the case of this study, the knowledge produced varied in its usefulness and focus based on the needs of each

participant within each context. I established and worked (i.e., collect data, attend post-lesson debriefs, have formal and informal conversation with participants) with the intern and mentor teacher as an active member of the classroom COP. Communities of practice are established by those who choose to work together, maintained by a common goal and commitment established within the group, and ended when there is no more interest in maintaining the group (Wenger & Snyder, 2000). For this study, the COP was established by the intern who sought to further develop their teaching practice to incorporate technology. The mentor teacher and I worked conjunction with the intern towards this goal. The COP ended after the intern completed the internship at the end of the 2017-2018 school year.

Settings

Data collection took place across three schools within three different school districts and are summarized in Table 1.

Table 1

District Information of Three School Settings

	Settings		
	Fillmore High School	Hamlin High School	Arthur A. Middle School
District Type	Suburban	Small Township	Rural
Size	2000	300	500
Demographics of Student Population	90% White, 3% African American, 5% Hispanic, 1% Asian or Pacific Islander, and 1% identified as more than one race	89% White, 2% African American, 6% Hispanic, 2% Asian or Pacific Islander, and 4% identified as more than one race	90% White, 1% African American, 6% Hispanic, and 1% Asian or Pacific Islander
% Free and Reduced Lunch	12%	32%	41%
Available Technology	Chromeboxes Smartphones	Chromebooks Smartphones	Chromebooks

Fillmore High School (FHS) is situated in Fillmore, a small suburban city in the Midwestern United States. The high school is large, with an enrollment of approximately 2000 students during the 2017-2018 school year. The student population is 90% White, 3% African American, 5% Hispanic, 1% Asian or Pacific Islander, and 1% identified as more than one race. Twelve percent of the population is considered economically disadvantaged. FHS offers both Advanced Placement (AP), at multiple grade levels, and International Baccalaureate (IB) courses. The classes taught by the intern and mentor teacher during the Spring 2018 semester were English 12, Creative Writing, and IB English. The classroom pictured in Figure 2 is spacious, with ample room between the 6 circular tables.

Figure 2. Classroom at Fillmore High School.

In the classroom, the students could use their smartphone when the teacher permitted it. If smartphones were not allowed during class, the directions to place their phones in the “hotel” were displayed on the overhead projector. The “hotel” was a wall-hanging calculator caddy with a large white number on each pocket (Figure 3).

Figure 3. Phone “hotel” at Fillmore High School.

Students were assigned a number, and that number corresponded to the pocket they must place their smartphone in. When there were no directions to place phones in the “hotel,” the students

kept their phones. The calculator caddy hung from a podium in the front of the room near the mentor teacher's desk. The room also contained 32 Chromebox computers. The Chromeboxes were placed on tables around the perimeter of the room. There were laminated white squares of paper attached to the upper left-hand corner of each monitor that displayed a number. Students were assigned a Chromebox based on their number, which is the same number they used for the "hotel."

The second school site, Hamlin High School (HHS), is in a small charter township near a large U.S. Midwestern university. Hamlin is an unincorporated community, with a population of about 2,000. The high school student population was approximately 300 during the 2017-2018 school year. The student population is 89% White, 2% African American, 6% Hispanic, 2% Asian or Pacific Islander, and 4% identified as more than one race. There is some diversity in socio-economic status among the population, with 35% of the student population considered economically disadvantaged. The school offered AP English, Honors English, and English courses. The mentor teacher and intern in the Spring of 2018 taught AP Literature, English 3, Creative Writing, and Senior Seminar. The classroom, pictured in Figure 4, is small and arranged in tables. A ninth table was added to the room to accommodate the larger class sizes of over 30 students the two sections of English 3.

Figure 4. Classroom at Hamlin High School.

The students were permitted to have their smartphones and there was no caddy to hold them during class time. A Chromebook cart was in the room, which makes a Chromebook available to every student, every period. On most days, there were Chromebooks on the tables available to students.

The third school site is Arthur A. Middle School (AMS). AMS, part of the Middlebrook Haven School District, is a school within a geographically large rural area. The mentor teacher describes Middlebrook Haven as a "bedroom community," and many members of the community live in Middlebrook Haven but work in a different city. Middlebrook Haven has a population of about 5,200. AMS contains grades 6, 7, and 8 and is moderately sized with approximately 500 students enrolled during the 2017-2018 school year. The student population is 90% White, 1% African American, 6% Hispanic, and 1% Asian or Pacific Islander. There is wide diversity in socio-economic status among the population, with 41% of the student

population considered economically disadvantaged. AMS is organized by teams, and the intern and mentor teacher were on the seventh-grade team. The team worked to co-plan, implement, and troubleshoot the same units of study. In the Spring of 2018, the intern and mentor teacher taught multiple sections of Reading and multiple sections of Writing. Populated entirely by seventh graders, Reading focused on the reading of novels, while Writing focused on genre study, essay writing, and creative writing. Some of the Reading and Writing courses taught by the intern and mentor teacher were co-taught with a special education teacher present in the room during instruction. These sections contained a higher percentage of students with identified special needs. The classroom, pictured in Figure 5, is set up with various pieces of furniture including single desks with attached chairs, round tables, rectangular tables, and tall "science room" tables requiring stools. The room is tight, with little space between the tables and the tables near the walls, though the classroom is not small. Rather, the classroom contains a lot of furniture which gives it the appearance or feeling of being small.

Figure 5. Classroom at Arthur A. Middle School.

Behind the intern's desk was a "Phonetel," which was a red, wall-hanging calculator caddy with clear pockets. Each pocket had an attached number, corresponding to a student who was assigned that pocket (Figure 6).

Figure 6. "Phonetel" at Arthur A. Middle School

The caddy was infrequently used and only a few students placed their phones in the caddy every day. A Chromebook cart was in the classroom, providing each student with access to a Chromebook during each period. The Chromebooks, if used, were put away between periods.

Participants

Participant Selection

This study centered on the experiences of three pre-service teachers completing their student teaching requirements for certification during the 2017-2018 school year. All three intern participants were enrolled in the same program at a large Midwestern university. Interns are paired with mentor teachers primarily on geographical preference requested by the intern. All three interns for this study were placed by the program coordinator in a school based on their geographical preference. In other words, they were placed in districts closest to where they would be living during their internship. After geographical preference, the next determining factor of placements was preference for middle or high school. Each of the three intern participants received their preferred grade level placement.

The first criterion for choosing participants for this study was selecting interns who attended two professional development sessions on using technology in the classroom. The professional development sessions were used to gauge concerns and issues with using technology in their placements. Though the sessions were not recorded, I took notes on who attended, the questions they asked, and the concerns they shared about using technology in the classroom. In the fall of 2017, the interns were given a choice of professional development sessions to attend in their master's course focused on teaching English and English methods. I taught a session on using technology in the classroom, of which about half (13) of interns enrolled in the course attended. Later, I offered a second professional development session on teaching with technology, which was a direct follow-up to the first session.

The interns, as part of that same master's course, which offered the professional development sessions on technology, completed an inquiry project. Groups were made based on

the general topics the group members were interested in investigating. The project tasked interns with reading and researching about a question or topic of interest, write and implement a lesson plan based on best-practices learned during inquiry, and write a reflection on the process. One of the groups chose "reading" as their inquiry topic. I chose this group to focus on, because all group members had attended the two professional development sessions on teaching with technology. During in-class work time on this project, I elicited the group members interest in new literacies, expanding the notion of what is text, and using technology in the classroom. Furthermore, I asked specific interns if they had an interest in working with me on a research project to further explore these issues.

The reading inquiry topic group consisted of seven interns. I used purposeful sampling (Creswell, 2011) to narrow down the sample to three interns. Based on their mutual interest in teaching with technology and exploring new notions of literacy and reading, the three focal interns were chosen. This interest was garnered from attendance of the professional development sessions, work in the inquiry group, and an expressed desire to be a part of a research project on this topic. The mentor teachers and school sites were therefore indirectly determined based on the intern's placement in that school. By chance, each placement had 1:1 computing programs over 5 years old and the interns' mentor teachers were experienced teaching with technology. All participants are white females, though they come from various regions and socio-economic backgrounds. In the most recent 2015-2016 survey by the National Center for Educational Statistics, 77 percent of teachers are women, and 80 percent of teachers are white, including both men and women (Taie & Goldring, 2017). Therefore, the three intern and three mentor teacher participants of this study represent demographics of the current teaching workforce.

Though this study is primarily centered on the experiences of the interns, the mentor teachers participated in the study. I received equal levels of consent from the intern and mentor teacher. Intern participants were given gifts of $100 gift cards and mentor teachers were given $50 gift cards from Amazon.com at the conclusion of the study. These gifts were not incentives, as participants consented to participate without any monetary benefits. Names of the school districts and school buildings are pseudonyms. All participants chose their pseudonyms.

Participants

Participants were three intern and mentor pairs. The participants of the study are summarized in Table 2.

Table 2

Summary of Participants

Placement	Fillmore High School	Hamlin High School	Arthur A. Middle School
	Intern Participants		
	Amanda Muwanna	Leslie Taylor	Barb Basil
Age	23	22	24
Background	Upper-middle class	Upper-middle class, Japanese heritage	Working class
Identity	Female Cisgender Heterosexual	Female Cisgender Heterosexual	Female Cisgender Homosexual
	Mentor Teacher Participants		
	Carrie Thompson	Felicity Robbins	Tracy Phelps
Teaching Experience	15 years	10 years	10 years
Identity	Female Cisgender Heterosexual	Female Cisgender Heterosexual	Female Cisgender Heterosexual

Amanda Muwanna was placed with Carrie Thompson at Fillmore High School during the 2017-2018 school year. Amanda is a 23-year-old intern from the Midwest. She is from an upper-middle class family. She attended school in a district neighboring Fillmore. She is white, cisgender-identifying as female, and heterosexual. During her internship, she was living at home

with her parents. She did not have an additional job outside of the internship. Carrie Thompson has taught at FHS for over 15 years. She is from the Midwest. She is white, cisgender-identifying as female, and heterosexual. She has children and is married. She has had many interns, though Amanda was the first one from the university in which Amanda was enrolled.

Leslie Taylor was placed with Felicity Robbins at Hamlin High School during the 2017-2018 school year. Leslie is 22 years old from the Midwest. She is from an upper-middle class family. She attended school in the Midwest. She identifies as white, cisgender - identifying as female, and heterosexual. Her grandfather is Japanese, and she is close with her family, which includes her parents and her sister. She has a job outside of the internship. Three times a week, Leslie works at a local golf course. Felicity Robbins has taught at HHS for over 10 years. She grew up in the Midwest and received her undergraduate degree at a local university. She took a year off teaching to attend a university overseas and received her master's degree. She is white, cisgender-identifying as female, and heterosexual. She has one daughter and describes herself as a single mother. She currently lives with a partner. Felicity has had 8 interns, all from the same university as the intern participants.

Barb Basil was placed with Tracy Phelps at Arthur A. Middle School. Barb is 24 years old. She transferred from an engineering degree to an education degree, and it took her an extra year to graduate. She is a from a working-class family in the Midwest. She identifies as white, cisgender – identifying as a female, and homosexual. She does not have a job outside of the internship, but she coached the girls' basketball team at AMS. Tracy has worked at AMS for over 10 years. She started out as an elementary teacher and was moved to the middle school during a reorganization. Tracy has two young children and is married. She is white, cisgender - identifying as female, and heterosexual. Tracy has had 3 interns, all from the same university.

Data Sources

In order to answer the research questions, I collected data from multiple sources across all three contexts. Multiple data sources across multiple cases were collected to achieve data triangulation for the goal of broader understandings of participants and their experiences, but not for the goal of generalizability. Though the contexts are different in culture, courses taught, and student population, I sought to create an alignment across the data sources. In other words, I collected the same data sources from all three school sites. Data were chosen to provide both rich (depth) and thick (numerous) sources to achieve data saturation (Creswell, 2011). Data were therefore collected from all attainable sources across a reasonably long length of time. For this study, I collected three primary sources and two secondary sources to answer posed research questions.

Primary Data Sources

Primary data were (1) classroom observations utilizing field notes, (2) audio-recordings of semi-structured interviews, and (3) audio recordings of planning sessions.

Field notes were taken during class observations (10-15 visits per school site). During each visit, I observed two class periods of instruction or 70 classroom observations across the schools. For Fillmore and Hamlin High Schools, I observed the same course, ELA 12 and English 3, respectively, taught twice each visit. For Arthur A. Middle School, I observed one period of Reading and one period of Writing, though the students were the same across the two periods. During observations, I took a non-participant observer role and only observed (Creswell, 2011). Observations occurred between January 2018 and April 2018. I observed two class periods of instruction during each visit. To understand the culture of the school site, participants' behavior while engaged in the community of practice, and achieve immersion into each

placement, I observed each participant pair twice a week across a 14-week semester. Field notes were taken on a laptop to record events in the classroom as they occurred, including teacher interactions and student interactions. I used field notes to record the enactments of teaching and observe human behavior with each specific context.

Field notes focused on moment-to-moment enactments of teaching practice. To contextualize and provide a framework for field notes, I used my background knowledge of new literacies and teacher integration of technology, as well as post-lesson debriefs with participants and lesson plans. For most observations, I had an understanding from post-lesson debriefs of the teacher's plan of activities and goals for student outcomes. One focus during observations was what the teacher wanted to achieve with a lesson and what was enacted in the classroom. Another focus of observations was looking for instances of enactment of new literacies theory in teaching practice. Using rich and detailed descriptions, field notes were written in narrative form to describe both the practices of the teachers and the students. These foci for observations and framework for field notes were employed for the purpose of answering the research questions.

To support and strengthen observations with field notes, I captured enactments of teaching practice and human interaction in various ways. I took digital photos of projections such as slides, particularly those that provided directions or context for the lesson. During classroom discussions, I audio recorded student and teacher talk. When the students were asked to use their smartphone or Chromebook as a part of classroom instruction, I used the cell phone screen capture app DU Recorder to capture instances of communal digital tool use, such as backchannel discussions using TodaysMeet and shared projections and discussions using Nearpod. The cell phone screen capturing recorded both the screen activity of students and the teacher as well as audio recorded classroom sounds. During instances of student independent work time, I audio

recorded informal conversations I participated in with students. These informal conversations were used to provide clarity of student perceptions during lessons. However, because this study focused primarily on the teaching practice of teachers and teacher perceptions, the perception of students was not captured systematically, and I do not seek to make claims about student experiences.

Semi-structured interviews were conducted to understand the experiences of participants and their perceptions of the experiences (Seidman, 2013). Interviews were used to understand how participants made meaning of their experiences during the semester. Three one-on-one semi-structured interviews were audio recorded with each participant. This resulted in a total of 18 interviews, each about 60 minutes in length. The interview protocols (see Appendix) were open-ended and semi-structured (Creswell, 2011) to best elicit the experiential understandings from the participants (Brinkmann & Kvale, 2014). The interviews were spaced across time to capture participants' perceptions and meaning making across time and allow for development of patterns.

The first semi-structured interview was a pre-study interview. This interview focused on soliciting background information of the participant, beliefs about technology and literacy, and goals for the intern's teaching. The second semi-structured interview was conducted mid-way through the semester. This interview focused on perceptions of successes, areas for improvement, and overall development of the intern. The final interview took place after the intern had completed their internship. This interview focused on perceptions of the entire experience, including successes, areas for improvement, and overall development of the intern. Interview questions varied some between the intern and mentor teacher protocol, but the questions were parallel in their wording.

The final primary data source was audio recordings of post-lesson debriefs. Each observation of teaching was paired with my attending a debrief with the intern and the mentor teacher. I participated in 10-15 post-lesson debrief within each placement across the semester, each about 60 minutes in length. I was a participant observer during the post-lesson debriefs and active member of the community of practice. Unlike my observer role during classroom observations, I was an active participant in each post-lesson debrief conversation. Audio recordings of debriefs served the same purpose as the semi-structured interviews: to understand participants' perceptions and meaning making of experiences. I occasionally used a semi-structured interview protocol during post-lesson debriefs to solicit perceptions and reactions to the teaching that occurred during my visit or teaching that occurred in the previous visit. This semi-structured interview was only used when the participant did not have a clear agenda for their post-lesson debrief. I also used informal questioning of the intern to understand the plans and goals for upcoming lessons.

Though each planning meeting looked different across each participant pair, I participated as a mentor to the intern and support to the mentor teacher in all three communities of practice. My role as a mentor took on three distinct characteristics. First, I was a *resource mentor*. As the intern and mentor teachers planned and discussed teaching, I provided ideas, resources, and insights based on my experience as a teacher educator and course instructor to the intern. During debriefing meetings, intern participants discussed their plans for future lessons. Throughout the study, the mentor teacher and I provided feedback and suggestions for lesson structures. Examples of lesson structure suggestions included sequence of lesson activities, pacing of lessons, and scaffolding of new material presented to students. I did not suggest new technological tools to intern participants. Interns were introduced to technological tools used in

this study from their university coursework, from their fellow interns in their program of study, and from their mentor teachers (see Chapter 4). Second, I also was an *institutional mentor* because of my expertise of the teacher preparation program at the university the interns attended. Because the intern's role within the mentor teacher's classroom, I was able to provide ideas and insights into how the intern conducted work for university course assignments or prepared for job interviews. Essentially, my role as the course instructor and mentor to the interns before the study continued into the study, defining my participatory observer role and identity as both a researcher and embedded mentor. This role was significant during the post-lesson debriefs but was not utilized during the classroom observations. The classroom meetings served in part as my way of "giving back" to the community and participating actively in the shared goal of our community of practice, which was key to obtaining entry to the classroom space in a way that was unobtrusive (during classroom observation) in order to see the enactments of teaching practice as they naturally occurred but also building relationships with participants to learn language, social norms, and patterns of behavior in the classroom space (Duke & Mallette, 2011).

Secondary Data Sources

Secondary data sources were: (1) class artifacts and (2) lesson plans. These secondary sources strengthened observation data and better captured the classroom environment (Yin, 2017).

The first secondary source was classroom artifacts. Artifacts varied depending on the teaching subject and style of the intern. Artifacts included classroom handouts, examples of student work (with identifiers removed), classroom websites (or Google Classroom pages), and copies of email exchanges regarding the school or intern. Lesson plans were collected and

reflected the lessons observed and lessons taught when I was not present. Interns and mentor teachers referred to classroom handouts or classroom websites frequently during post-lesson debriefs. As a result, these sources provide more description and context for these meetings.

Procedures

This study was conducted during the spring semester of the 2017-2018 school year. I attended each placement twice a week. At each school site, I observed classroom instruction and attended post-lesson debriefs with an intern and mentor teacher pair. I observed two periods of instruction and attended 1 post-lesson debrief during each visit. The two periods of instruction were part of the interns' teaching load, and each intern was responsible for teaching and planning each period of the day. In other words, these periods are the responsibility of the intern to plan and teach during the spring semester, though the mentor teacher provides support as needed.

I visited Fillmore High School a total of 19 times. Visits to FHS began January 23, which was earlier than the other placements, resulting in the most visits. During each visit, I observed two period of ELA 12. Each period had about 25 students. English 12 is a course that is taken by seniors electing to not take IB English, Honors English 12, or Advanced Placement options. English 12 is a semester long course that began in January of 2018. After two period of English 12, I attended a post-lesson debrief with the intern and mentor teacher.

I visited Hamlin High School a total of 11 times. Visits to HHS began February 7. Five days of observation were missed because of snow days and field trips. At HHS, I observed one period of English 3, which had 27 students. English 3 is a year-long, non-honors English course for juniors. English 3, thus, began in August of 2017. The next period, the mentor teacher taught a period of Creative Writing. This was considered the post-lesson debrief for this study. Felicity Robbins, however, was available and participated in each post-lesson debrief because of the

nature of independent work time in Creative Writing. Finally, I observed a second period of English 3. This section had 30 students. On occasion, I continued the post-lesson debrief after school.

I visited Arthur A. Middle School a total of 11 times. Visits to AMS began February 14. Four days of observation were missed because of snow days or delayed starts. At AMS, I observed one period of Writing followed by one period of Reading, which was a co-taught section with a special education teacher. Reading and Writing are year-long courses, though sometimes students are shifted at semester changes because of scheduling conflicts. However, most of the students remained in the same period the entire school year. Seventh graders take one period of Reading and one period of Writing the entire year. For this study, I used a period where the mentor teacher was teaching a section of Reading as a period to attend a post-lesson debrief with Barb The intern and I went to the school's library during planning meetings. As a result, the mentor teacher was not present for the planning meetings at this site.

Ethical Considerations

I obtained Institutional Review Board (IRB) approval prior to the study. Consent was obtained first from the intern and mentor teacher during meetings prior to the study's start. Signed parental/guardian consent forms were obtained from parents/guardians of students in all classes of which I observed. If a parent/guardian or student opted not to participate in the study or did not return a signed form to me, the student was redacted from all field notes, photos, and audio recordings. No student identifiers were transcribed in audio recordings or made visible in any visual data. All data collected remained confidential and stored on password-protected devices.

Careful consideration of conflicts of interest was taken to separate my role as researcher and my role as course instructor during the study. All three interns were enrolled in a master's level course, of which I was one of three instructors of record. Once the interns had agreed to participate in the study, read and signed consent forms approved by the IRB, and understood the risks associated with the researcher, I no longer participated in assessing any of the intern's work or participation in the course to ensure that the interns felt no coercion to participate in the study as it related to their work in the master's level course. The other two instructors removed my access to shared documents containing grade and assessment information for the duration of the study. In other words, I had no participation, awareness, or influence in the grades or participation during class of the participants during the study.

Data Analysis

All data sources were organized using the qualitative data analysis software MAXQDA. Transcribing and coding were completed using MAXQDA. To answer research question 1 (*How do interns enact teaching practices in the classroom?*) and question 2 (*How do interns use digital technologies to enact teaching practices in the classroom?*), field notes and data supporting classroom observations were coded using process coding (Saldana, 2016). Process coding allowed for the identification of actions and events that occurred in the classroom. Classroom observation data were then used to construct chronological data displays (Miles, Huberman, & Saldana, 2014) of each observed class period. I was able to visualize what occurred during each visit, chronologically, using key codes to describe both the teaching practice and technology utilized. Codes relating to lessons were aligned chronologically with the teaching events from the data displays. This allowed me to see how the interns' perceptions on

their teaching related to their actual, in-the-moment teaching that I had observed. Process codes are summarized in Table 3.

Table 3

Process Codes for Actions and Events Occurring during Classroom Observations

Code	Example Classroom Activities	Description
Discussion	Small group discussion, TodaysMeet for annotations, Nearpod collaboration board discussion, Chalk talk on butcher paper, Snowball discussion, Literature circles, Four corner discussion, Silent Discussion on TodaysMeet	Class activities in which students primarily discuss, talk, or interact (verbally or through a digital device)
Direct Instruction	Filling out handouts, Going over assignment sheet, Nearpod used to project slides, Going over homework assignments	Class activities in which interns present content to the student through verbal explanations (sometimes enhanced with digital slides)
Assessment	Individual student shares out group discussion, Sticky note exit slips, In-class writing prompts	Class activities for the purpose of collecting formative or summative data
In-class Worktime	Google Doc assignment, Sustained silent reading, Vocabulary assignments, Typing handwritten essays	Class time is used to complete individual tasks or homework assignments

The data displays of classroom observations provided a method to visualize themes of enacted practice across all three settings and eventually choose key lessons that illustrated the enacted teaching practice of each intern overall and across time. Furthermore, key lessons were chosen as they also supported the themes described to answer question 3. All classroom audio recordings from key lessons were transcribed and aligned with codes from field notes to provide the foundation of thick, rich description of findings for questions 1 and 2.

To answer question 3 (How and why, if at all, do interns ply the new literacies made possible by digital technologies when they enact teaching practices in the classroom?), I first

transcribed all interviews and post-lesson debrief meetings. The transcripts of interviews and post-lesson debriefs provided insights into the interns' beliefs and perceptions of their teaching practice. All interviews and post-lesson debriefs were first coded using a combination of values coding and In Vivo coding (Saldana, 2016). Values coding produced codes that reflected the values, attitudes, and beliefs of the interns. In Vivo coding was used with the goal of preserving the voice of participants (Saldana, 2016). Values and In Vivo codes were first organized by topics such as values on students, using technology, lessons, grading, mentors, and teaching (broadly) and then color-coded. Next, codes under the topics of teaching (broadly), using technology, on lessons, and on students were coded a second time and separated from individual cases to look at themes across all participants. Second round values codes and In Vivo by topic are summarized in Table 4.

Table 4

Second Round Values Codes by Topic for Values, Attitudes, and Beliefs of the Intern

Topic	Example Codes	Description
Teaching (Broadly)	Teaching is wanting approval Teaching is lonely Teaching is performance Teaching is for students Teaching is unpredictable Teaching is playful Teaching enacts change "I care to get better" "English content is very open"	Interns perceptions on the teaching profession, their role as a teacher, and how to be a teacher
Using Technology	Limited knowledge Ideas from colleagues Limited human connection Setting good example Competing with technology Adds complexity to lessons Tech changes learning Balance technology and face-to-face "I realize it doesn't need to be perfect" "Technology use should be intentional"	Interns perceptions on using technology in the classroom, how technology impacts learning, and how technology impacts students' lives broadly

Table 4 (cont'd)

On Lessons	Lack of time Necessary "boring" lessons Students "got it" Lesson went smoothly Unsure if students know the technology Discussion was/was not authentic Student were engaged Focusing lesson to work Students are excited and doing work Students don't want to read Students engaging when moving around "I didn't know what to expect" "Discussions have been challenging" "English class is repetitive"	Interns perceptions on effectiveness of lessons, success of lessons, and students' perceptions of lesson
On Students	Love your students Students don't want silence Relationships with students important Show expertise to students Student have to motivate themselves Student need to collaborate Students need to show growth Student was options	Interns perceptions on what students want and need from lessons, them (the teacher), and school broadly

The following essential themes (see Chapter 5) emerged from this round: (1) to expand student notions of literacy, (2) to meet the societal imperative for student competencies in digital literacies, (3) by using discussion to facilitate student learning, (4) and by advancing teaching practice into new territories of technology integration.

I sought to maintain transparency throughout the study. My field notes, audio recordings, screen captures, and collection of artifacts were and still are available to participants for review. It is important for qualitative researchers to maintain accuracy and credibility of findings, both during and after data collection, through member checking and triangulation (Creswell, 2011). I employed member checking to improve validity, accuracy, and credibility (Duke & Mallette, 2011), by sending each participant a digital copy on Google Docs of writings, particularly those

containing descriptions of their teaching practice and context. Each participant was given permission to comment and suggest on their digital copy, which was only shared with me and the participant. No participants requested any changes and verified that the writing reflected their own experiences.

Data were triangulated by soliciting data from different individuals (interns and mentor teachers across 3 research sites), of various types (primary and secondary data sources described previously), and of various data collection methods (documents, interviews, and observations). The emerging themes are thus accurate as the evidence draws from multiple sources of individuals, types, and methods (Creswell, 2011). No data that conflicted with the main themes were found.

Positionality and Limitations

Positionality

By design, this study depends and is led by my relationships with the interns and, by proxy, their mentor teachers. Two of the participants I met in the Fall of 2016 as their course instructor of a teacher preparation course. One participant I met in Fall of 2015 as her course instructor of a literacy course. In other words, I have known the participants for 2 or 3 years in the context of being their instructor. I was their instructor at the start of the Fall 2017 school year during a course taken during the internship. Once the participants agreed to be in the study in December of 2017, I no longer participated in the grading or assessment of the participants. This multi-year relationship with the intern fostered trust and provided access to the school sites.

As a former high school English teacher who taught in a 1:1 computing environment, my commitment to new literacies and teaching with technology is a driving force in my research. As a result, the participants know my commitment, and their participation in this study stems from a

similar interest in new literacies and teaching with technology. I sought to be a resource, mentor, and recorder of the experiences of pre-service teachers and their mentor teachers as they attempt to teach with technology guided by theories of new literacies.

Limitations

The participants, and resulting school sites, were selected by their vocalized interest in this project and teaching with technology. As a result, representation of various school contexts is limited. This study does not include interns in contexts other than the 3 used. I also do not work with teachers in other subject areas, such as math or science. The interns and mentor teachers, though they come from varying geographical locations and economic backgrounds, are all white, cisgender, and female. The participants were chosen not to represent a generalizable group, though they do represent the majority of the teaching force (Taie & Goldring, 2017), but based on a common interest in the themes and area of inquiry of this study. Furthermore, the amount of access and trust required for this study is based on relationships. The relationships I have formed with these interns across the years I have known them aided in my access to the school sites. By the nature of a participatory ethnographic case study, this study does not seek to make generalized claims but to provide rich, thick description of a phenomenon (Creswell, 2011; Yin, 2017). Data generated from the mentor teachers' interviews were not used in this study, because they did not contribute to answering the research questions, which focus primarily on the perspectives and experiences of interns. Since the interns were in the latter half of their year-long internship, mentor teachers were not actively involved in classroom teaching. As a result, they are absent from the classroom observations. However, this does not suggest that the mentor teachers did not have a significant impact in the shaping of the interns' perspectives. This impact is reflected in the post-lesson debrief and intern interviews, which include the interns directly

discussing how their mentor teachers have influenced their perspectives on various aspects of teaching and their teaching practice.

CHAPTER 4: FINDINGS

To answer my first and second research questions (*How do interns enact teaching practices in the classroom?* and *How do interns use digital technologies to enact teaching practices in the classroom?*), I chronicle the teaching practices and digital technologies used by each intern in the following pages.

Case 1: Amanda at Fillmore High School

Using Nearpod During Pre-Reading Discussion (Feb. 6)

In early February, Amanda's ELA 12 class was nearing the end of a literary analysis unit on the theme of escapism. The students had read several short stories and poems, listened to a podcast, and watched several short video clips. She desired to have her students read different perspectives through digital texts. Amanda spoke specifically about the use of podcasts and digital texts during her first interview: "I really like connecting people through readings and things that we watch. It has interested me bringing in some sort of podcasts and those types of ideas and having them listen and respond and have conversations and dialogues about all these really cool new ways of learning knowledge, that I don't think are fully taken advantage of" (interview, January 16, 2018). Her valuing of digital texts like podcasts and videos is motivated by the fact that her students find them more engaging and interactive, 'really cool new ways' of acquiring information. The final product of the unit was to write a literary analysis essay making claims about how society views escapism and imagination using evidence from the texts read.

For her lesson on February 6, Amanda planned to use the web-based platform Nearpod to facilitate a pre-reading activity for the film *The Secret Life of Walter Mitty*. Nearpod allows teachers to create slides or import slides from a program such as PowerPoint. Between the slides, teachers can insert interactive activities such as a collaborative discussion board, a drawing

activity, and a quiz activity. During class, teachers activate their slides, called a “Lesson” in Nearpod, and give students a shared class code. Students can then view the slides and interact with the activities on a laptop, tablet, or smartphone. The teacher controls the pace of the Lesson, and whatever slide or activity is active is projected to all students’ devices. Amanda would lead the students through a discussion and analysis of photos and videos relating to the film. Prior to the lesson, she was unsure of how the use of a new technological tool would go, stating, “This could totally flop. I don't know how they're going to react to this. It's going to be fine. It'll work itself out” (post-lesson debrief, January 21, 2018). Despite her uncertainty, Amanda proceeded to use Nearpod during her lesson. It was important to Amanda to try. She had confidence that even if use of the technological tool was not well received, she could revise her plans for the next time it was used. Amanda frequently spoke about her lack of technological knowledge of new tools, but she consistently tried new tools that she was exposed to.

After projecting the class code and ensuring all students were viewing the slide, Amanda played a video of the two main actors from the film discussing fantasies created by the title character Walter Mitty. Amanda purposefully chose the video clip to bring in new perspectives on the topic of escapism. She stated:

> I feel like it kind of adds something because it's not me constantly saying, ‘These fantasies are important.’ Originally [the students] were talking about different fantasies that they've had when they were younger and things like that as we talked last week. And I think that this helped them to push to think about, oh, artists use daydreams and teachers use daydreams. I think that that helped them think. (post-lesson debrief, February 6, 2018)

Using videos from YouTube allowed others to explain key concepts to her students. It was important for Amanda to not be the sole provider of information. She used the actors from the film to provide an additional perspective, which Amanda viewed to be more engaging with students than a lecture from her. Amanda's classroom had Chromebox desktop computers available to each student around the perimeter of the room. She instructed students to use their smartphones to view the Nearpod slides. Though Amanda told students they could use a Chromebox if they did not have a smartphone, all students in the class used their personal smartphone to participate in the lesson.

Amanda instructed students to answer the question on the slide (Figure 7).

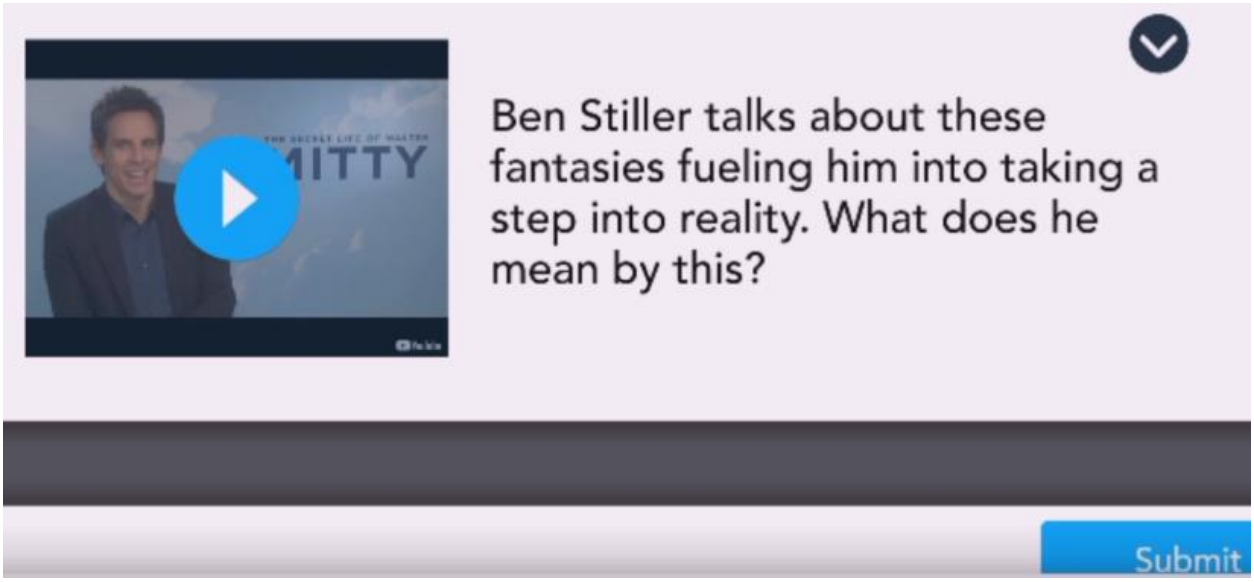

Figure 7. Open-ended question activity on Nearpod.

She said to the class, "So what does he mean by this? What is he saying? So you just type your answer and click submit." Students were not able to see each other's answers right away on their phones, and student names were hidden from the class. On the overhead projector, Amanda displayed her "Teacher View," which populated each student's answers as they were submitted. Occasionally, Amanda selected a student's answer and projected it to the class. However,

Amanda more frequently read aloud one student's submitted answer by reading it off the overhead projector and not providing any further commentary before selecting another submitted response to read aloud. As a result, students no longer looked at their smartphones and looked at the overhead projector once they had submitted their answer.

Amanda projected a student's response (Figure 8): "So I'm going to share this one out to you so you can have it on your screen. And I'm curious, what we think this means by 'he gained courage?' Courage to do what?" A student responded, "He stepped into reality." After asking if anyone else had thoughts, Amanda read another open-ended question response (Figure 8). She asked, "Is it only the creative people that benefit from these fantasies?" Amanda calls on a student who responded, "Everyone can benefit. Having fantasies about what you want to do can motivate you to go out and do it in reality." Amanda responded, "All right, cool," before moving to the next interactive activity.

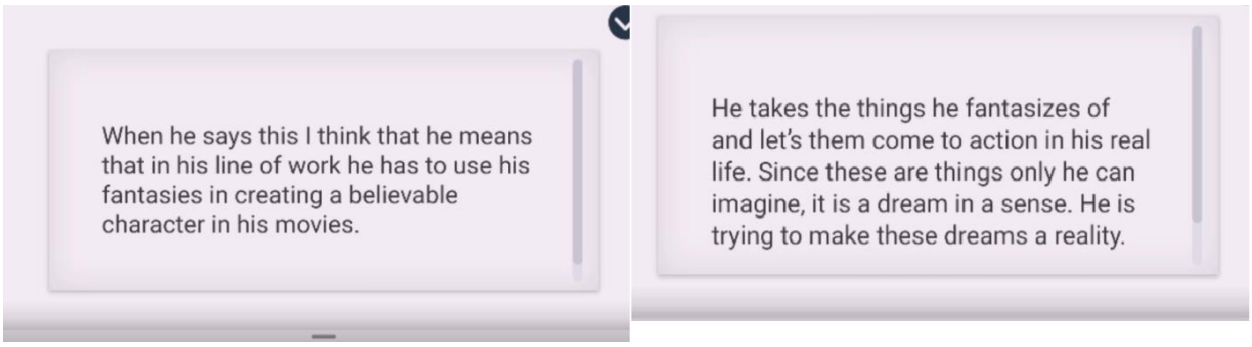

Figure 8. Two student responses to Nearpod open-ended question activity.

Amanda used Nearpod's open ended-question activity to facilitate a discussion after viewing a video of actors discussing the film. She highlighted certain student answers and asked students to react and respond. The technology provided a way for students to provide the topics for discussion. Though Amanda chose the student response to highlight, the responses were generated by students and projected onto the overhead. In this way, the responses became a new

text for class responses. After the lesson, she shared her reservations about highlighting certain student responses over others. “One thought that I did have while I was doing this is, does it say something about the answers that I pull up and highlight on? I felt like I was trying to highlight quite a few answers. But I was kind of worried. Am I highlighting correct answers? But I don't think that this question, that these questions today really lent themselves to that” (post-lesson debrief, February 6, 2018). She wanted to be careful if she ever used Nearpod to ask open-ended, opinion-based questions. “I wonder in the future if there was a question that was more opinion, if I would be highlighting my opinion, not really realizing that I'm doing it. So being conscience of that, if that came up.” Amanda’s concerns represented her core value: a student-centered classroom with student-*generated* content needed to be the focus of discussion. Her method of using Nearpod and her lack of trying to drive the discussions to specific answers or topics were examples of her attempts to create this student-centered classroom.

Amanda then progressed to the next activity in Nearpod, a collaborative board, which prompted students to submit short, 250 character responses to a question (Figure 9). Answers were projected to everyone in real time. Students responded with text and images and could “heart” a peer’s response.

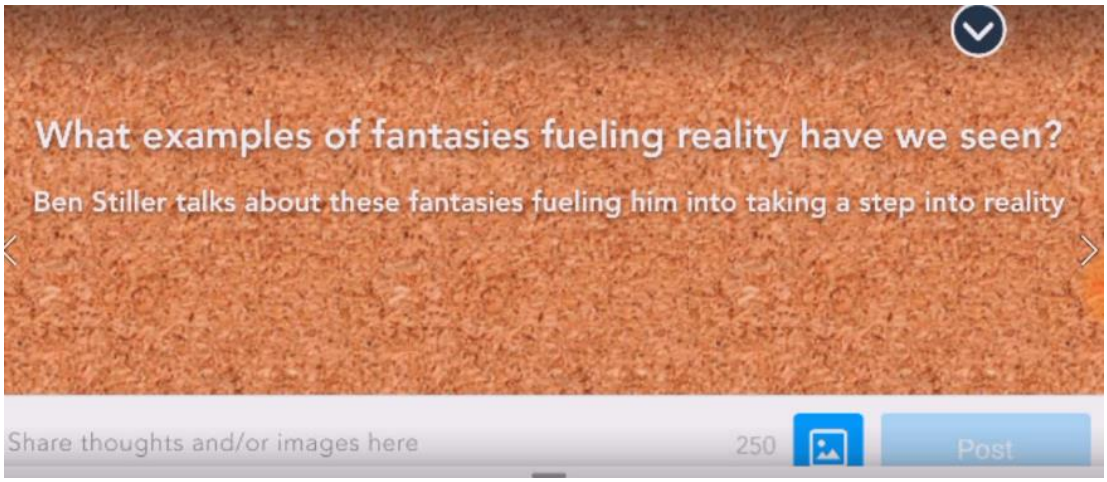

Figure 9. Nearpod collaborative board prompt.

After reading the question aloud, Amanda said, “So, as we think about the short stories that we read last week or the video clips that we’ve looked at, or podcasts we’ve listened to, or even your personal life, what examples of these fantasies, helping you or a character step into reality, have we seen?” Students submitted their responses on their smartphone, and their responses began to pop up on the overhead and each student’s smartphone screen (Figures 10 and 11). At each table, most students were looking at the overhead projector once they submitted their response. A smaller number of students read their peers’ responses on their smartphone. Amanda considered this aspect of how students were engaging with the visuals and interactive activities during the post-lesson debrief. She later reflected, “Today I was trying to figure out, still, how to use [Nearpod] exactly on the big screen. And also, what's something that I can pull up that they can talk about” (post-lesson debrief, February 6, 2018). Her focus on which student responses to talk about and how to use the ‘big screen’ projector indicated Amanda’s continued attempts to improve the use of the technological tool to achieve her ultimate goal of providing engaging avenues for student-centered discussions. Amanda saw the students’ attention on the ‘big screen,’ controlled by her, and not their own devices as something to correct.

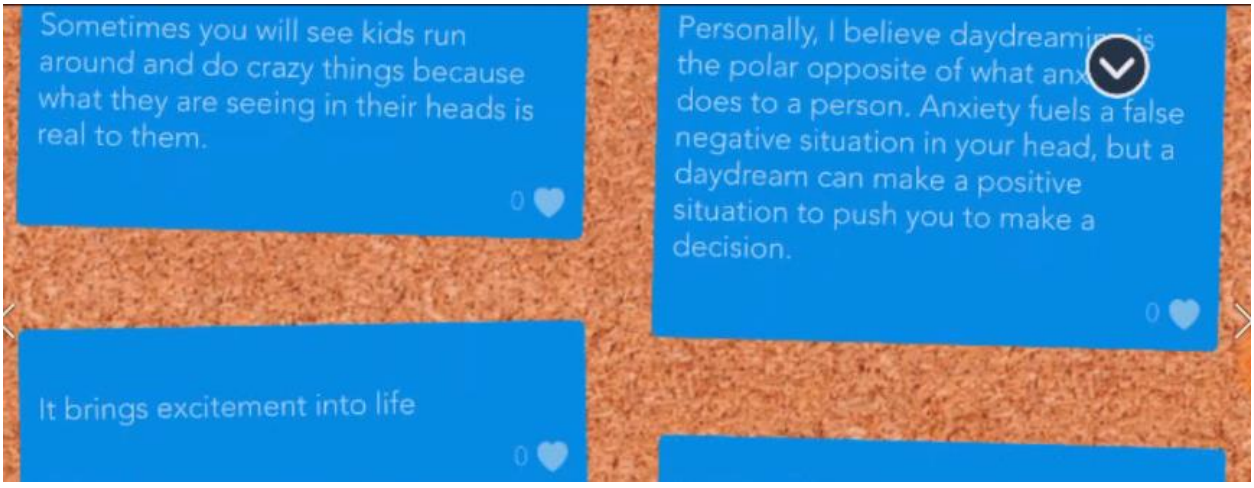

Figure 10. Example student responses on collaborative board.

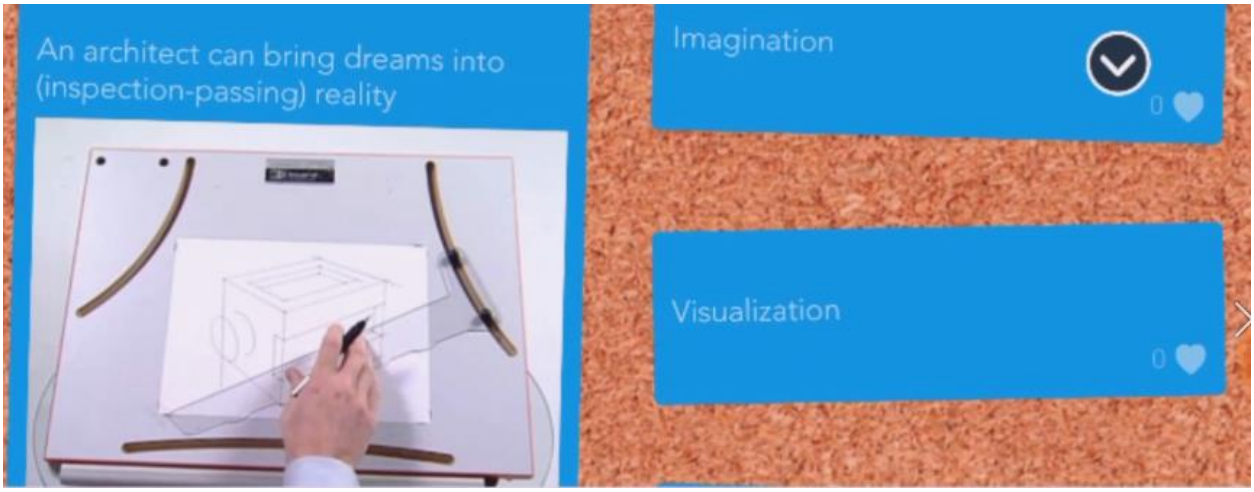

Figure 11. Example of student inserting images on collaborative board.

Back in class, after a brief period of silence, Amanda began to read the responses aloud as they appeared on the screen, interjecting to say, "You can also like each other's. So if you see one that you think it is really interesting or you agree with, you can like them, just like you would on Facebook or something." The use of 'hearts' by students were a way for Amanda to see which responses were most liked. Using the collaborative board activity in this way, she avoided the problem of being the sole chooser of student responses to highlight and discuss further, a problem she often discussed in post-lesson debriefs. After reading aloud the student response from the collaborative board, "Sometimes you will see kids run around and do crazy things because what they are seeing in their heads is real to them," Amanda questioned the class further: "I'm going to ask you a further question on that one… kids always have these big fantasies and they're usually adventures or some sort of crazy activity they are engaging in. Why do you think kids do that in particular? Why are kids' adventures always so large?" A student responded, "They don't have anyone telling them to stop being kids." Another student said, "I guess they don't have any prior knowledge of what to do so they just sort of do whatever." Amanda agreed and said, "I just think it's interesting, that kids have these big fantasies and they

are always out there adventuring and trying new things." She continued to read more student responses on the overhead.

Amanda posed a final collaborative board activity question about the video clip featuring the actors from the film *The Secret Life of Walter Mitty* (Figure 12). The question, however, solicited quick responses, which she read as they populated on the screen (Figure 13). The students responded for two minutes as Amanda read each response aloud, and she did not question students further after reading through the responses.

Figure 12. Second Nearpod collaborative board prompt.

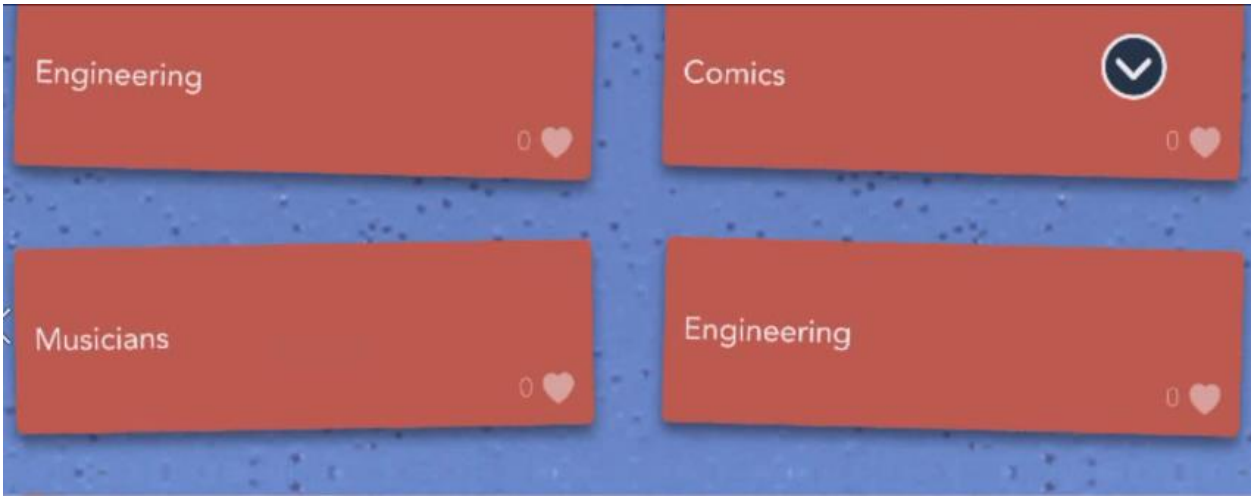

Figure 13. Student responses to second Nearpod collaborative board.

The final pre-reading task before viewing the film had students examine the film's movie poster. First, Amanda projected to each students' smartphone the movie poster. "The next thing we're going to do," she instructed, "is we're going to look at the movie poster of *Secret Life of Walter Mitty*. So you have the picture on your screen so that can help you kind of zoom in on it." Amanda passed out a handout, instructing the students to complete a "See Think Wonder" on the film poster (Figure 14).

Name:

Directions: Take a close look at the pictures posted around the room, and fill out the following chart to show your thinking.

SEE: What do you notice in this image? What stands out to you?	
Think: What do you think it means?	
Wonder: What are you still wondering about?	

Figure 14. Movie poster projection on Nearpod and "See Think Wonder" handout.

Students completed their "See Think Wonder" handout silently. One student asked Amanda how to zoom on the smartphone in to view the photo. She responded that she didn't know, but another student volunteered to help. To enlarge the movie poster, Amanda changed the overhead projector to a full-screen image of the movie poster rather than the Nearpod slide containing the movie poster image. After a few minutes of silent work, Amanda asked the students to share out their responses, followed by viewing the film.

Amanda reflected on her first use of Nearpod during the post-lesson debrief: “I thought the Nearpod went well for the first time using it. I thought that they were engaged. I think I at least got to see their thoughts a little bit more, and that was helpful. I'm going to need to work on getting comfortable.” She also found that Nearpod provided a more interactive way to display slides, stating:

> [Nearpod’s] something I plan on using more. Just because I think it's such a nice way to do the PowerPoints, because I know the PowerPoints can get so boring for them. Like, [PowerPoints] are helpful to me to have up, and I know that they're helpful to have a visual aid, but I was always wishing that there were ways to interact with that more. And I bet this helps with that. (post-lesson debrief, February 6, 2018)

For the purposes of her lesson, Nearpod served as both a new and perhaps more engaging way to display information to and interact with her students. However, she did not yet feel completely comfortable with the platform. Her lack of comfort was perhaps a result of her continued uncertainty about which student responses to highlight and how to make the task more student-centered.

Using Nearpod for Writing Instruction Mini-Lesson (Feb. 15)

The following week, the ELA 12 students began writing their literary analysis papers addressing the theme of escapism. Her mentor teacher Ms. Thompson suggested that Amanda teach mini-lessons throughout the writing process to review the topics of writing introductions, writing conclusions, and inserting quotes and examples. Using Nearpod, she planned to project informational slides to her students and insert an interactive activity to facilitate short discussions, while formatively assessing students’ readiness about the writing topic. Each writing mini-lesson using Nearpod was around 10 minutes long.

On the second to last day of the escapism unit, Amanda instructed the students to log into Nearpod using their smartphones. Students were quick to log on, as they had done this 3 times over the past week during writing instruction mini-lessons. Amanda began the mini-lesson by posing the following question to the students using a Nearpod collaborative board: "What is the purpose of a concluding paragraph? That is your opening question for today that I'm going to have you respond to… I just want to hear your thoughts." The purpose for the collaborative board activity during this lesson was to formatively assess students' readiness to write conclusions. For Amanda, this was an affordance of Nearpod collaborative boards. After the lesson was complete, she reflected:

> Well they definitely help with formative [assessment]. It gives me a chance to check and see where they're at. I have definitely looked at the collaborative board and been like, 'All right, you guys are right on the money. We're going to move along. Or I'll look at the collaborative board and be like, 'Woah, this is not at all what I was expecting.' It helps me to either speed up the lesson or slow down a lesson. I try to figure out what they're saying up there and why it doesn't match what I was expecting to see. (post-lesson debrief, February 15, 2018)

In this way, Nearpod provides new avenues of assessment as well as interaction. The concepts of a concluding-*paragraph* and *writing-a-concluding-paragraph* were complex for the students. Amanda's use of Nearpod to quickly gauge the students' knowledge about the purpose for concluding paragraphs used the short answer format to allow for open-ended responses. Furthermore, Amanda once again was able to use student-generated responses to discuss the concept of a concluding paragraph. The student responses became the text to learn and discuss the new content.

For this lesson, like in the pre-reading discussions before viewing *The Secret Life of Walter Mitty,* Amanda read the responses aloud as they populated on the overhead (Figure 15). Amanda asked a follow-up question to the class about similarities in the posts: "So what do we mean when we say, a lot of you said to sum up your points. What do you mean by that? Can anybody elaborate?" One student responded, "It's like a lasting thought on what you wrote. You keep it short and give your last thought."

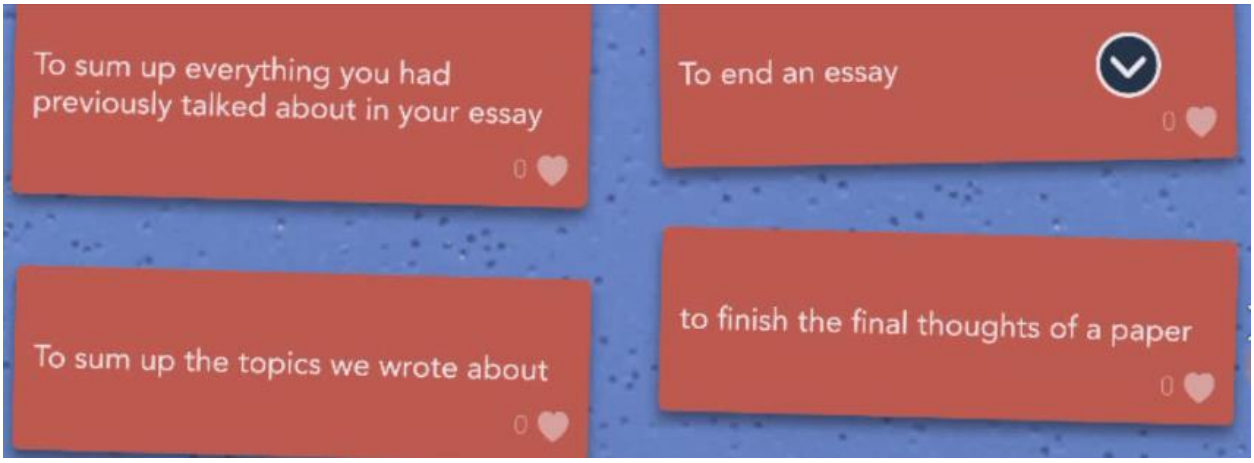

Figure 15. Students' responses to writing mini-lesson Nearpod collaborative board.

"Do we put anything else in that final paragraph, do you think?" Amanda asked. A student responded, "You restate your thesis." Amanda agreed with the responses and proceeded to the next informational slide about writing strong concluding paragraphs. Amanda used the rest of the mini-lesson time to review the characteristics of conclusions.

During a post-lesson debrief the following week, Amanda stated that using Nearpod for writing instruction was useful, and she decided to try using Nearpod with her Creative Writing elective class, a course she taught in the afternoon. She described using the drawing interactive activity, which allowed students to highlight a page of text and submit their highlights to the teacher. She described the lesson:

> They did a lesson on feedback. We did this whole page on Nearpod. So they read a 100 word story, and they had to find how many examples were used. And they had to highlight, and they used the drawing activity, so they highlighted on there. It was funny though because some of the kids were like, “My finger’s too big. This isn't working.” And I was like, “Just keep trying.” But I also gave them a paper version [to highlight], but they were like, ‘No we like this.” (post-lesson debrief, February 22, 2018)

Though her students struggled with some aspects of the technological tool, Amanda thought the lesson was successful. Amanda continued to explore ways to use Nearpod during writing instruction but identified some areas she would like to continue to grow with her use of the platform. While she relied on reading aloud students’ responses to open-ended questions and collaborative boards, she did not try having students discuss responses in small groups. “I haven't done this type of discussion, where I'm like, ‘Hey so, at your tables, discuss what's on the collaborative board or discuss the ideas that you guys think are most important on the collaborative board at your tables.’ I don’t know how that would look and what opportunities that would bring out” (post-lesson debrief, February 15, 2018). Though her idea would perhaps have led to even more student-centered discussion, she felt ill-equipped to facilitate that lesson. Amanda’s oscillation between confidence in trying new things and hesitation could have stemmed from her often-discussed lack of confidence in her teaching. She also wished that Nearpod would expand the functionality of the collaborative board to allow students to directly respond to a classmate’s post.

Using TodaysMeet for Silent Post-Reading Discussion (Feb. 27)

After wrapping up the escapism thematic unit, Amanda started the next literary thematic unit with the ELA 12 students. Amanda planned a unit exploring three genres: horror, science

fiction, and dystopian literature, also known as Speculative Fiction. Like the unit on escapism, she wanted the students to read and analyze various short stories, poems, videos, and other texts within each genre. The idea of using a digital tool during class for reading, annotation, and discussion was mentioned a month before the Speculative Fiction unit began. During a post-lesson debrief in late January, Amanda brainstormed:

> I'm sure there are other platforms that do this, where they have to make their annotations online, and they can comment to other people's annotations. And I was thinking, "Oh, would that have been more helpful to them?" If they could have hopped online and done that type of annotating and been able to respond to one another? I thought about that afterwards." (post-lesson debrief, January 23, 2018)

Amanda, however, decided to use a tool she learned about from a colleague, rather than find an annotation that fit her original ideas. Though she was willing to try new tools in class, she used tools exclusively that were introduced to her by others, even if the tools didn't exactly align with her instructional goals. Her ultimate hope was to help improve discussion during class, a goal that Amanda pursued during the entirety of her internship.

After learning about the tool from a colleague, Amanda decided to try using the backchannel communication platform TodaysMeet during her lesson. TodaysMeet allows teachers to create chat rooms. Students do not need to create logins to participate. Rather, after students are directed to the specific chatroom set up by the teacher, students enter a one-word name to enter the live feed. TodaysMeet live feeds are not stored indefinitely, but teachers have the option of downloading transcripts of the live feeds before closing the chatroom. Prior to the February 22 lesson, Amanda said about TodaysMeet, "It's supposed to hopefully help some with my discussions. And part of helping my discussion is trying out these different methods. Like,

okay maybe we do silent discussions" (post-lesson debrief, February 6, 2018). Like Nearpod, Amanda tried the digital tool without knowing how students would take up the lesson, stating, "They've never used TodaysMeet. I didn't know what to expect" (post-lesson debrief, February 22, 2018). She did, however, expect that a silent discussion would be engaging for students, because the conversation would be digitally mediated. Furthermore, students would be able to interact during the individual task of reading silently, something Amanda thought was not as engaging for students.

On the day of her lesson, Amanda began her Speculative Fiction unit with the horror genre. Amanda planned for the students to read about how the entertainment industry uses psychology to scare audiences. At the start of class, a journal prompt on the overhead projector asked: "What do you think directors or authors purposely do to scare people? Why do people like horror movies, shows, or stories?" Students were used to the routine of beginning class with journal prompts. After a few minutes of silent writing, Amanda instructed the students to stand up and find a partner across the room that was wearing the same colored shirt. Students discussed quietly while standing with partners and small groups their responses to the prompt.

Amanda distributed a non-fiction article titled "The Psychology of Fear: Exploring the Science Behind Horror Entertainment." Fillmore High School utilized a common annotation and highlighting visual thinking routine. At each table, a basket of highlighters and pens were available for student use. Amanda did not need to provide the students with specific instructions for reading the article; rather, she told the students to "read and annotate" the article. Students knew the expectations to silently read, highlight, and annotate the text, because of their previous experience with the visual thinking routine. As students began to finish the article, Amanda projected instructions to log on to TodaysMeet and into the class chatroom. After 7 minutes, all

students indicated they were finished with the article by no longer looking at the page or holding a highlighter. Once the directions for TodaysMeet were available, students took out their smartphones. Amanda did not prompt the students to provide specific names or aliases to the chatroom. Later, she would correct this, as students used anonymous names and could not be identified through the chat.

With all the students logged on to TodaysMeet, Amanda projected the following directions: “Submit to TodaysMeet: a list of strategies or techniques authors/directors do to create fear in readers/viewers.” In other words, the students were tasked with sharing the strategies or techniques they learned from the article on the TodaysMeet feed. The room was silent as students either looked at their phones, at each other, or at the overhead projector. Amanda posted first in the chat, and a student followed up with a question of her own (Figure 16).

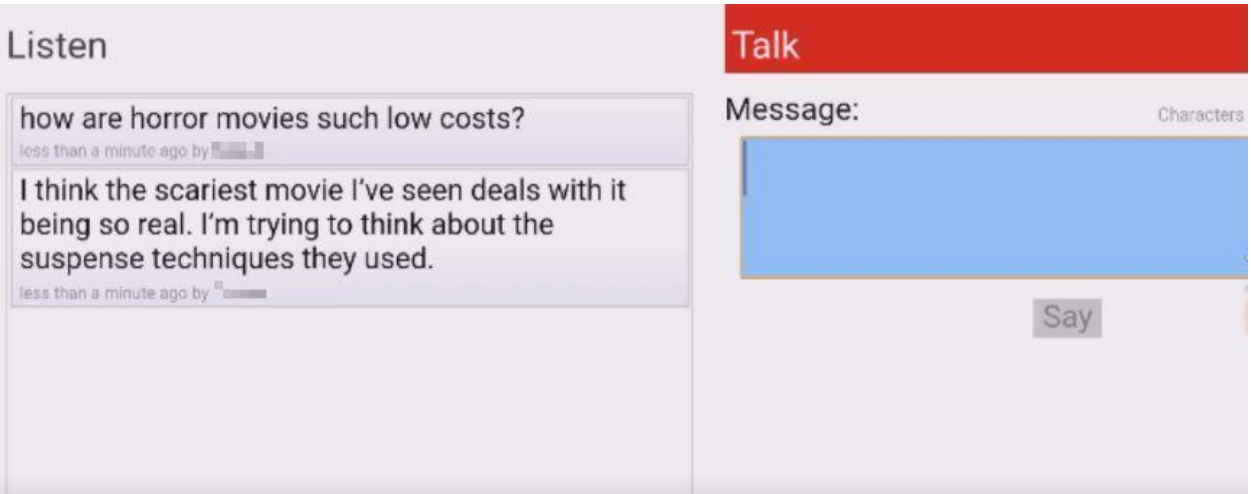

Figure 16. Slow to start TodaysMeet discussion.

Though the classroom was silent, it took over a minute for another student to post to the chat. The student wrote an off-topic post saying, “Where’s the Q at homie?” (Figure 17). Students were heard laughing at the post and looked around at each other and the teacher.

Amanda during a post-lesson debrief later reflected on off-task chatter on the live feed, and that there were “not as many troll comments” as she was expecting (post-lesson debrief, February 22, 2018). Amanda attributed these “troll comments” to not requiring students to use their actual names to enter the TodaysMeet chatroom. “I think that's an opportunity next time to say, now that you've had a chance to work with it, I expect you to put your name, and we're going to do it for participation [points].” The subsequent times Amanda used TodaysMeet in her teaching, she asked students to provide their first and last names to log in to the TodaysMeet chatroom.

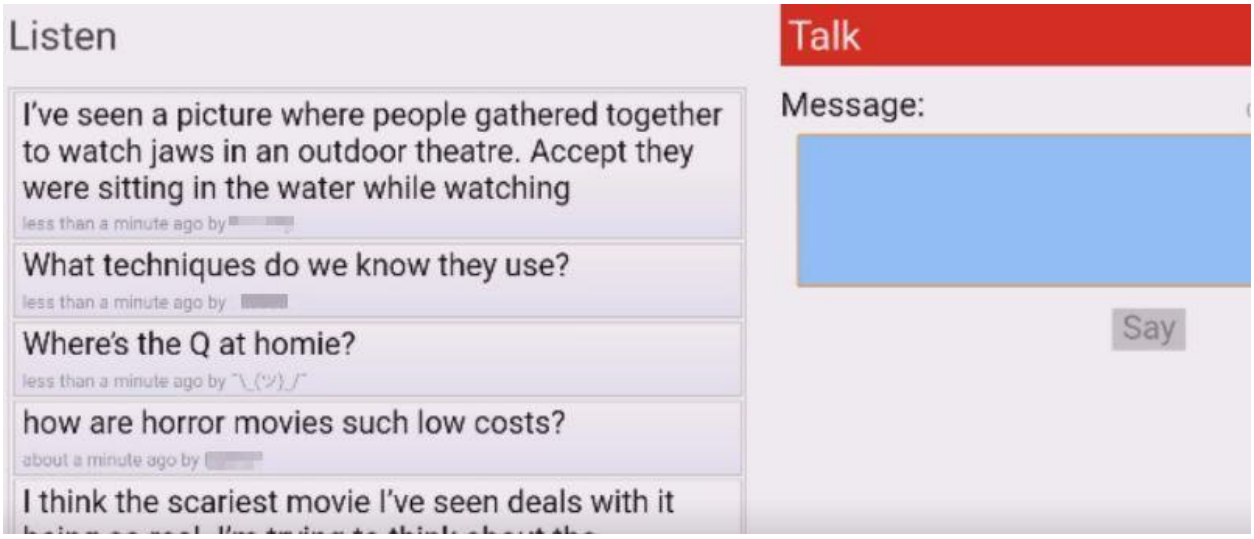

Figure 17. Amanda asks, “What techniques do we know they use?”.

To continue the lesson and keep the silent discussion moving, Amanda posted again to the live feed, prompting another student to respond quickly (Figure 17). Over the next several minutes, students continued to post in the chat (Figure 18). While circulating the room, Amanda interjected with further clarification of the directions: “You should be reading through, I see you are posting some interesting comments. I see some good comments about techniques and questions. So read through this and see what other people are saying. This is interesting.” Amanda decided to pull up the TodaysMeet on the overhead projector. Though she did not want

to redirect the students' attention away from the chat, she perhaps thought that projecting the live feed would allow her to better monitor the live feed.

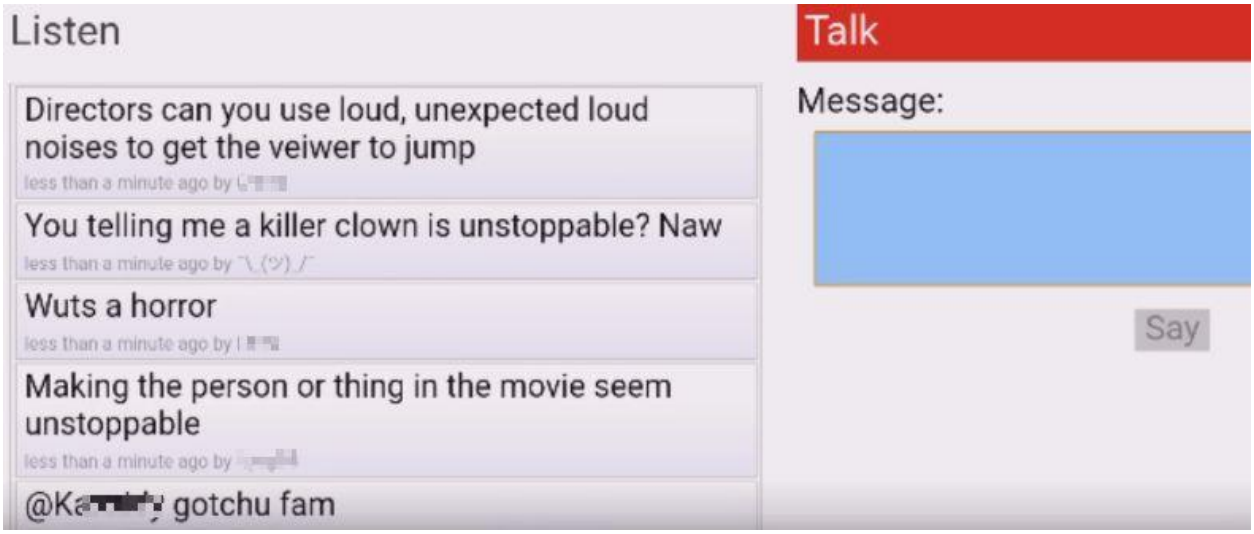

Figure 18. TodaysMeet feed before Amanda provides more directions.

Not only did Amanda feel the typical pressure of managing student behavior on the live feed, she also struggled with an internal conflict to talk during the silent discussion. She said during the post-lesson debrief, "Even though it's a silent discussion, I still want to be like, 'What do you think?' And I know that's okay to towards the end of the discussion. If it's a silent discussion, I still need to get comfortable with that" (post-lesson debrief, February 22, 2018). As a result, of this conflict, she ended the TodaysMeet silent discussion by reading aloud several posts from the feed.

Upon reflection during a debrief following the lesson, she realized students were not given a clear understanding of the purpose of the TodaysMeet live feed:

> My intention was to have them interact more with the article and TodaysMeet, but I realized after, because they did the highlighting, that it didn't correspond. And that was partly because my intention originally was to have them go and write techniques on that

> butcher paper [not on TodaysMeet], which didn't happen. (post-lesson debrief, February 22, 2018)

Though there were some off-topic comments from students, and the students needed some prompting to keep chatting on the feed, Amanda was pleased with the lesson. “That went a lot better, and I saw a lot more engagement with the piece and not as many troll comments. There was like the one or two troll comments. And even the troll comments in general were not as bad as I thought they were going to be” (post-lesson debrief, February 22, 2018). Amanda knew that students would most likely leave “troll” or inappropriate or off-topic comments on the feed, but this did not deter her from continuing the discussion. She found value in the task, which was further evidenced by her continued practice with TodaysMeet. Like Nearpod, Amanda persisted in her use of TodaysMeet, using it four more times as a discussion tool across her Speculative Fiction Unit.

Annotating While Reading with TodaysMeet (Feb. 27)

Over the next two weeks, Amanda used TodaysMeet as a tool to capture students’ responses and annotations as they read short stories in the Speculative Fiction unit. A few days after the class read “The Psychology of Fear” article with TodaysMeet, Amanda planned to have her students read the short story “Afraid.” This time, however, she instructed them to use TodaysMeet as they read, rather than use it to respond after reading. First, she instructed students to input their first and last name into TodaysMeet. She told the class, “When you see a tactic that the author is using to scare people, you are going to post them in there [TodaysMeet]. And remember you can respond to each other’s, so you can use the @ sign to respond to somebody and ask them a question or answer their question.” Amanda informed the students that they were also free to write and highlight on their paper, as the students were used to annotating in that

way. “You are definitely free to do both,” she said. Compared to her previous use of TodaysMeet, Amanda provided students with clear directions and purpose for using the live feed.

After four minutes of silent reading, students began to post responses into TodaysMeet (Figure 19). The number of responses on the live feed began to steadily increase. Students responded to each other using the @ symbol, perhaps a direct result of Amanda’s suggestion to do so. Amanda sat at her desk, reading the text silently with the students (Figure 20). Most students did not have their smartphones in their hands and were not using highlighters on the text either. Rather, students would read the text and occasionally pick up the smartphone or highlighter to annotate before picking the short story handout back up.

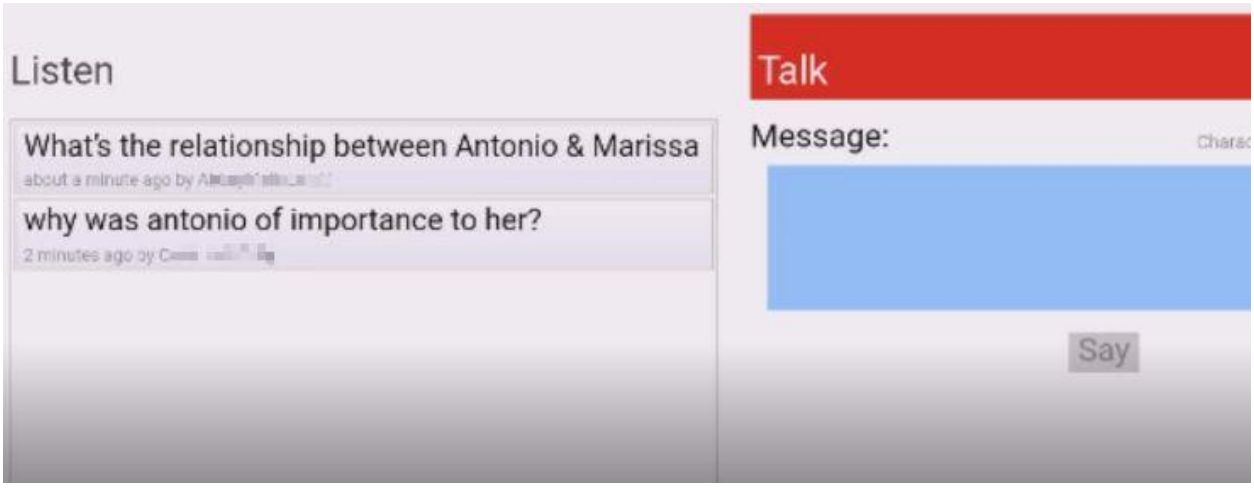

Figure 19. Four minutes into silent Reading, 2 student responses.

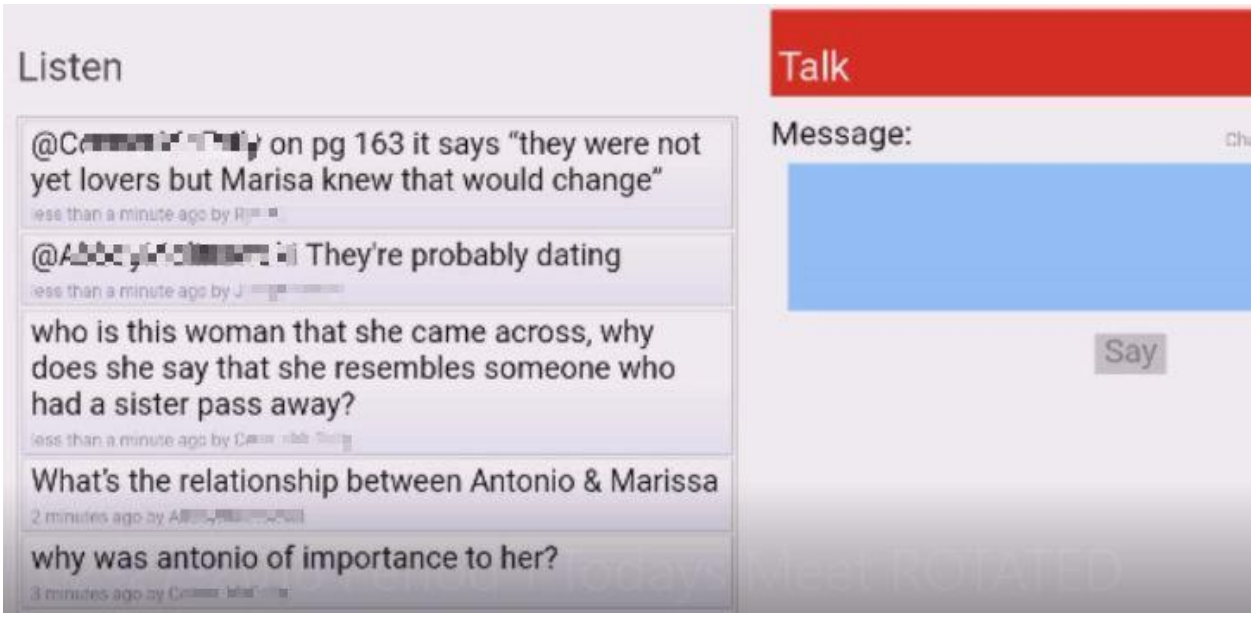

Figure 20. Students use of the @ symbol.

Ten minutes into the silent reading and responding in TodaysMeet, Amanda began to circulate the room. With 23 students in class, five different students had posted onto the live feed. Amanda reflected after the lesson that she was surprised by the small number of students participating: "I think I expected it to be half and half. I expected it to be 15 or so people interacting on TodaysMeet. And then the other couple of them, I honestly, thought the paper [annotations] would have been the minority" (post-lesson debrief, February 27). After circulating the room during the lesson, Amanda returned to her desk and posted the question "What about Antonio makes him weird?" to the live feed (Figure 21). Towards the end of the period, she put the TodaysMeet feed on the overhead projector, which was a strategy used during her first lesson with TodaysMeet (Figure 22).

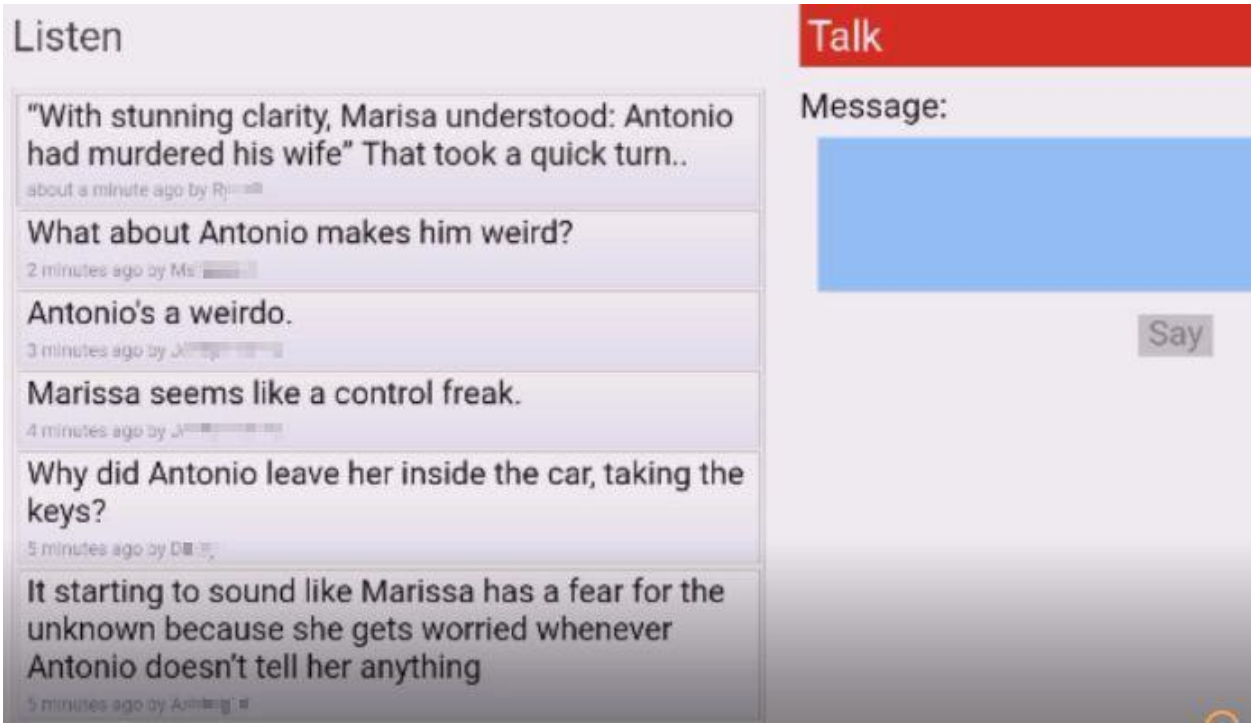

Figure 21. Amanda asks a question on TodaysMeet.

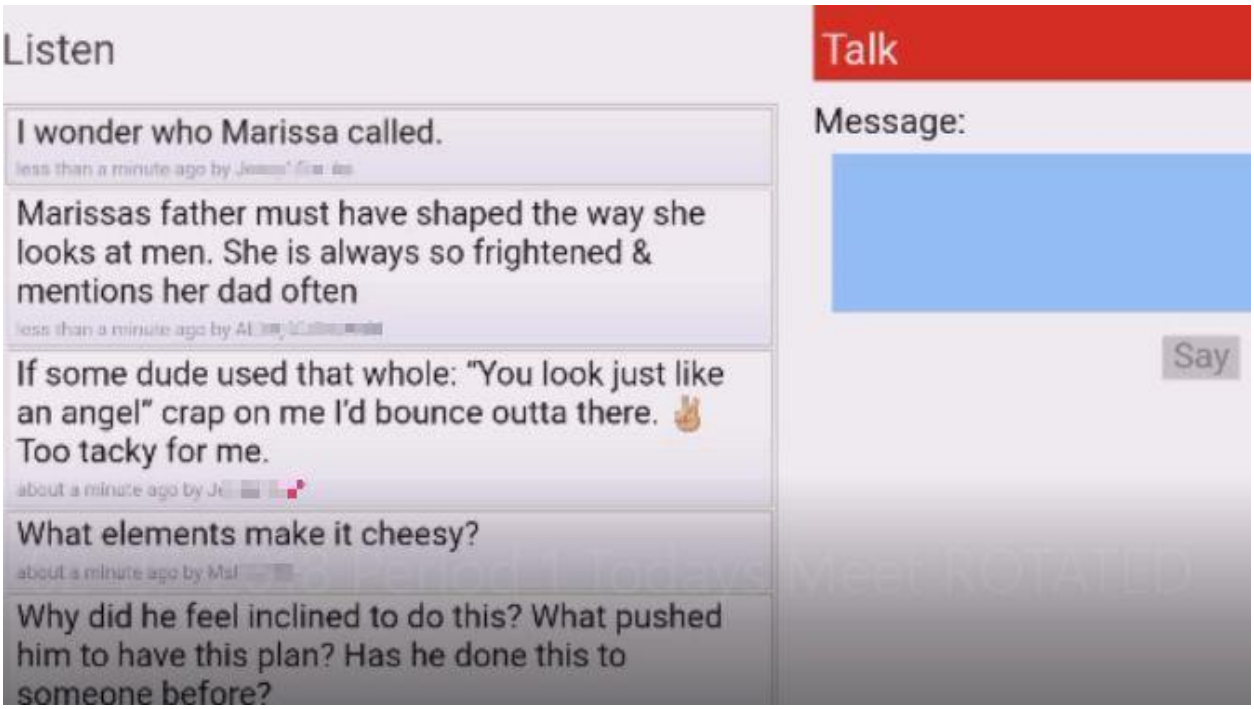

Figure 22. TodaysMeet at the end of the period.

As the period came to an end, Amanda reminded the students to finish reading "Afraid" if they had not. She also invited them to continue to post their thoughts on TodaysMeet. Immediately following the lesson, Amanda expressed frustration about the pacing of a lesson using TodaysMeet. "I have yet to get down the timing of TodaysMeet. We always run out of time. and then, it's hanging out and I'm like, 'Oh finish this story for homework, and then they're on TodaysMeet at different times. I don't feel like that's purposeful. So I feel like I haven't gotten that down really" (post-lesson debrief, February 27, 2018). She also contemplated different possibilities of follow-up lessons utilizing transcripts of the TodaysMeet live feeds:

> I'm trying to see if I could draw questions from [the transcript]. Because I was thinking if I could have a couple questions and give them two post-it notes and have them respond to the questions that they want to. If I had four questions or six questions, and I gave them a couple sticky notes and they could respond to some of the questions that they're interested in. But the other thing is, I don't want to do too much of an overkill where I'm like, "TodaysMeet. Now we're going to discuss it and we're all going to read the answers." (post-lesson debrief, February 27, 2018).

Amanda overall found using TodaysMeet to be a useful tool for her teaching practice. When discussing about her use of technology during an interview, Amanda said, "Using some of the technology for silent discussion or formative assessments has gone really well, and I like that. I like being able to see their thinking, and I think that that's really helped me to be able to plan for the next day or plan what they need from me" (mid-study interview, March 6, 2018). Amanda continued to use the tool for the duration of her Speculative Fiction Unit.

Amanda's Concluding Thoughts

From her very first interview, Amanda expressed reservations about her skill, knowledge, and readiness to use digital tools in her teaching. When asked about what she considers when integrating technology, she stated the following:

> Instead of thinking about the, "Why are you using this type of platform?" I just go straight to, "Well, this is an easy opportunity for them to have their phones and they'll think I'm cool for doing it." And we will rock it out. And a lot of times I also struggle with giving myself enough time to play around with the site as well. I'll see somebody else do it, whether that be people in my cohort or just another teacher. They'll show me they used it. And I'm like, "Ah, simple." I'm like, "technology, I can pick that up." And then I go to teach it and [the students] are like, "Well how do I do this?" And I have no idea. (pre-study interview, January 16, 2018)

However, Amanda consistently used technological tools in her teaching practice for the duration of her literary units. Even when faced with students resisting participation in TodaysMeet, she persisted and tried tools multiple times. Amanda admitted to relying on only a few tools, particularly Nearpod and TodaysMeet. She said during an interview, "I still just don't feel like I know enough technology, so I find something like Nearpod, and I use it every day all day. And then I become obsessed with it. Then I learn about TodaysMeet. and I'm like every day, all day!" (mid-study interview, March 6, 2018). While Amanda continued to try out new tools, she found herself staying within her comfort zone, but didn't "know exactly what that means" (mid-study interview, March 6, 2018).

Amanda found it important to use technology and to balance it with physical interaction in her class. One goal was to have her students connect with each other during class through various modes of discussion:

> I want to have students have that technology and use that technology and still be able to learn when is it a good time to just shut it down and be like, “Okay, I'm zoned in...we're zoned in on each other or we're doing group work and I'm zoned in on what so and so is saying across the table from me.” Because we are in human connection. We're talking. (pre-study interview, January 16, 2018)

Amanda found fostering these connections challenging, particularly getting students to connect their ideas, stating:

> Just discussions in general have been challenging. Just because they give any answer, and then they want to be done. They're like, “Okay I gave my answer.” And I try to pry more out of them or get them to think on a higher level or connect with somebody else’s. The connections are there, and it's obvious for me to see. But I still find it challenging for me to be like, “You just said something that relates to what that person said. Connect!” (mid-study interview, March 6, 2018)

At her final interview, Amanda said that having a clearer purpose for her discussions was key. “I was really thinking about the purpose and the type of discussion I was going to have. Because I was always forgetting that. I was like, ‘We're just going to have a discussion. It's going to be cool.’ And I wasn't thinking about how to operate that discussion and how to set up that discussion. So that's a big takeaway for me too” (post-study interview, April 19, 2018).

Summary of Case 1: Amanda

In short, my chronicle of Amanda's teaching practices, digital technologies, and purpose of technologies in teaching practice is summarized below in Table 5. Amanda relied primarily on Nearpod to facilitate discussions and interactive lectures. In the latter half of the unit, she used TodaysMeet to facilitate discussions on the reading of literature. Amanda described using Nearpod or TodaysMeet before or after the reading of literature for the purpose of using discussion to facilitate student learning. Both provided students with opportunities to interact and with technological tools in class, which were important to Amanda. As a result, she used Nearpod to allow for more engagement and interaction during a lecture. Furthermore, she used TodaysMeet to provide continued interaction among students on a digital platform while they performed the individual task of reading.

Table 5

Summary of Amanda for Research Question 1 (How Do Interns Enact Teaching Practices in the Classroom?) and Research Question 2 (How Do Interns Use Digital Technologies to Enact Teaching Practices in the Classroom?)

	Teaching Practice	Digital Technology	Purpose of Technology in Teaching practice
Feb. 6	Pre-reading of literature discussion	Nearpod	Using discussion to facilitate student learning
Feb. 15	Mini-lesson direct instruction of writing	Nearpod	Provide opportunities for student engagement during lecture using digital technologies
Feb. 22	Post-reading of literature discussion	TodaysMeet	Using discussion to facilitate student learning
Feb. 27	Annotating while reading short story	TodaysMeet	Using digitally mediated discussions

Case 2: Leslie at Hamlin High School

Using Nearpod to Analyze Photos (Feb. 7)

In late January, Leslie introduced her juniors to *The Grapes of Wrath* by John Steinbeck. The novel would be the focal text of a 10-week unit. Leslie planned the unit to have a relatively routine weekly set of tasks: Mondays and Wednesdays were discussions and activities around the text, Tuesdays and Fridays were independent reading either silently or by audio book, and Thursdays were students meeting in literature circles.

During the first half of the unit, Leslie tried new technological tools to facilitate discussions/activities and independent reading days. A week into *The Grapes of Wrath* unit, Leslie planned to use the new-to-her web-based tool, Nearpod, as part of a lesson on discussing and analyzing photos from the Dust Bowl, the time period of the novel. Leslie had learned about Nearpod from a colleague at the university she attended. The juniors opened the Chromebooks already on their desks and were instructed to log into Nearpod using a class code. Leslie projected the slides on the overhead in front of the class while students were able to view the slides individually on their Chromebook's web browser. The first slide was a famous picture from the Dust Bowl of a woman and her child (Figure 23).

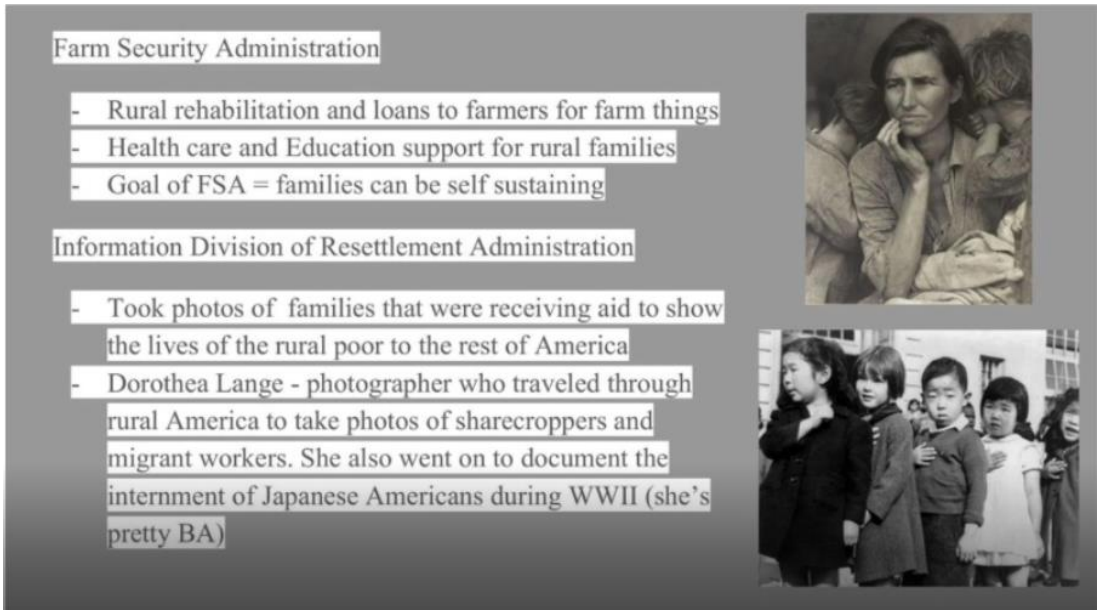

Figure 23. Nearpod slides used during Leslie's direct instruction.

After a brief discussion about the photograph, Leslie proceeded to describe the history of the photograph, the photographer, as well as the Dust Bowl (Figure 23). Later in the month, Leslie explained her choice to use direct instruction in her teaching: "Talking in front of them, I'm talking with a purpose and a direction that I want to take them" (post-lesson debrief, February 28, 2018). Specifically, she described the differences in the purpose of her whole class discussion and her lectures, stating, "Talking about the book and just opening it up to ask a question and having them go is different than being like, here's the theme, do these steps, okay next" (post-lesson debrief, February 28, 2018). Therefore, Leslie wanted the use of Nearpod to enhance the lecture by providing a new way to project information on slides. With Nearpod, the students saw the slides on their own device rather than relying solely on the overhead projector. During the lecture, the students were quiet and attentive, and almost all students looked at the overhead rather than their Chromebooks to view the information on the Nearpod slides.

Leslie next showed the students another photograph from the Dust Bowl but pointed out that students may not be as familiar with this one (Figure 24). "I'm going to challenge you to

kind of analyze a not so famous one and see what we can come up with," Leslie said and instructed the students to discuss the photograph at their tables. After a few minutes of small group discussion, Leslie asked a table to share what they discussed. One student responded, "So his back is turned and I guess emphasizing the old man from everybody else." Leslie responded, "Right! So this guy is turned completely around, 180 from the rest of the crowd. We can't even see their faces, and he is completely disengaged. It seems like maybe everyone in the crowd is talking to each other or viewing something in front of them, and he is not interested at all in even being involved in any of that in the crowd, right?" Leslie proceeded to call on a different table. A pattern developed in which Leslie would call on a student to respond and, after the student responded, Leslie would rephrase and expand on the student's response. Rather than use the interactive collaborative tools on Nearpod, Leslie had her students talk face-to-face at their tables. Leslie valued these face-to-face interactions among her students.

Figure 24. Second picture displayed using Nearpod.

This pattern was a product of Leslie feeling pressure to direct student learning. Leslie discussed this pressure during a lesson debrief later in the month, stating the following:

> I don't want to be a director. That debrief conversation, I only do that because I think it's necessary to end up a lesson. I don't do it because I'm married to whole class discussions where I'm the only one who is like… I repeat what the students say and try and authentically… translate what they're saying. (post-lesson debrief, February 14, 2018)

Despite her desire to not be the director of the discussion, she lamented that it continued to happen, stating, "The whole group discussion always turns into me trying to direct the conversation somewhere and looking for specific things" (post-lesson debrief, February 28, 2018). The struggle to not be the center or direct discussions permeated Leslie's teaching for the entirety of her internship.

Continuing the lesson, after viewing one more photograph, Leslie directed students to a Dust Bowl Photo Website hosted by PBS (Figure 25). For the remainder of the period, students completed a packet containing analysis questions to be answered individually, though the students were permitted to talk and work together at their tables.

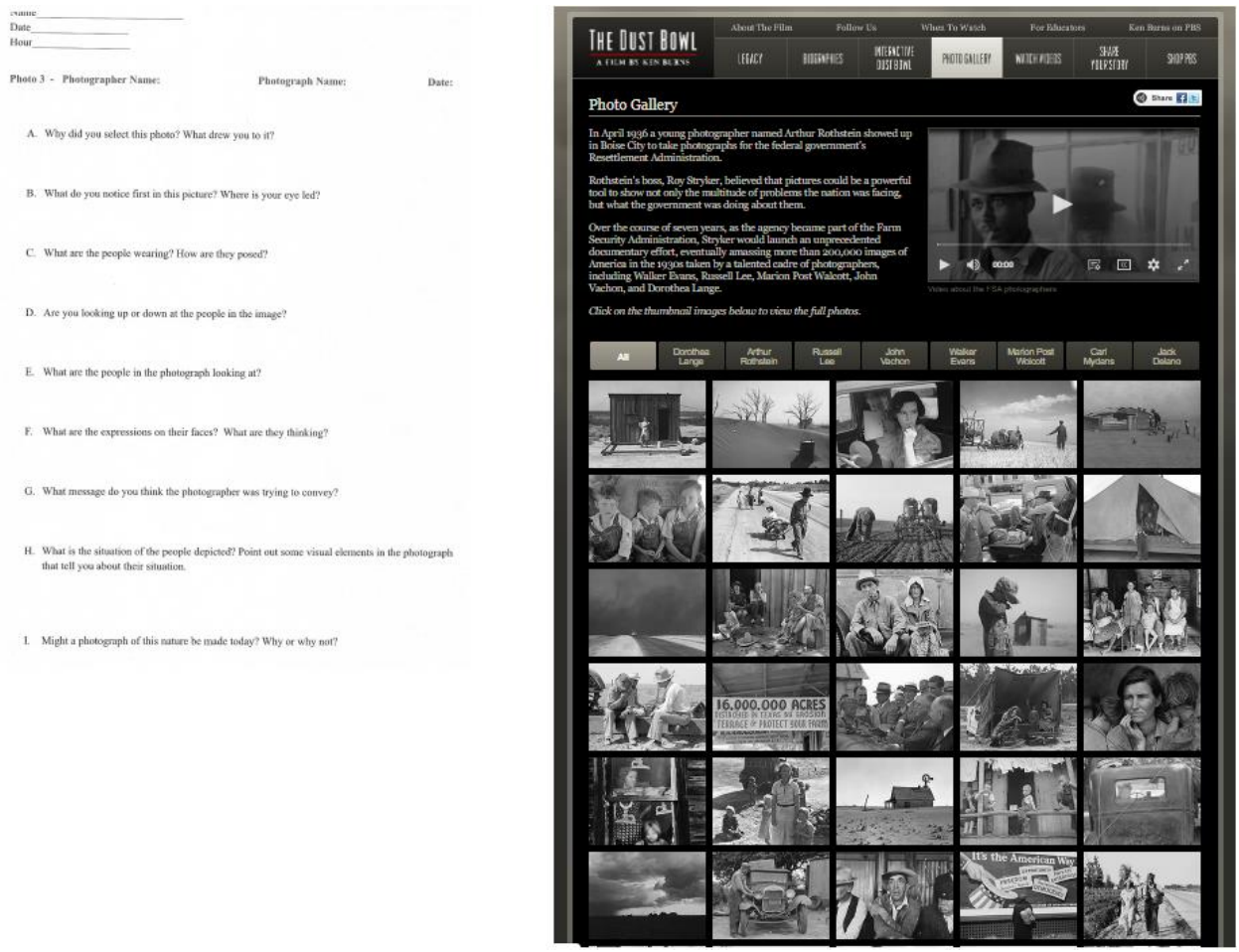

Figure 25. Photo analysis worksheet and screenshot of Dust Bowl photo website.

Leslie did not embed any of the interactive features into her Nearpod lesson. Rather, she used the tool exclusively to display the pictures on the overhead as well as the students' individual Chromebooks. During the Dust Bowl historical context lecture, students sitting in the tables closest to the overhead projector did not look at the slides from their Chromebooks. Students sitting farther away from the projector more frequently used their Chromebook to view the photos/slides through Nearpod, though most still looked at the overhead projector. During the small group discussions and whole class debriefs, students sitting closest to the overhead projector continued to view the photographs from the overhead, not their Chromebooks. In this way, Nearpod served as a replacement or enhancement for the overhead projector. During a later

post-study debrief, Leslie stated that, for her, this was an affordance of Nearpod that provided a method of differentiating her instruction. “I was able to directly put on their screen the photo I wanted them to look at while we were doing it as a whole group. So in terms of differentiation, we have a couple students in the room who prefer to be close to the board because they have… preferential seating” (post-lesson debrief, March 5, 2018). Using Nearpod to project provides ease of visibility as well as control of the slides. “I was able to point out specific things and they weren’t like squinting at the board; it was right in front of them. I was able to control forward and backwards. It just seemed like a good structured way of doing it whole group where they were still getting a lot out of it right in front of their face” (post-lesson debrief, March 5, 2018). In this way, Leslie’s purpose for using Nearpod was to facilitate face-to-face discussions around projected images, but she did not want to facilitate digital discussions by using the interactive features.

Annotations While Reading in Class Using TodaysMeet (Feb. 21)

Earlier in her internship, Leslie observed her mentor teacher Ms. Robbins use TodaysMeet as a tool for silent discussion. “My mentor teacher’s really into all the tech stuff,” Leslie said during her first interview. “She’s very willing to try new things in terms of let’s just throw this out there and see what happens… Like in our AP class it’s just like pulling teeth… They just look at each other and not talk, but if we give them a TodaysMeet… they are all about it” (pre-study interview, February 7, 2018). As she planned for her *The Grapes of Wrath* unit, Leslie wanted to use TodaysMeet as an annotation tool during a lesson that was reserved for silent reading of chapters 14 and 15. To this end, Leslie changed the purpose behind TodaysMeet from a facilitator of silent discussion to a facilitator of shared annotations. Before this lesson, students had annotated exclusively in their own books using sticky notes. Leslie would

periodically check the students' annotations. She reflected on prior use of sticky notes during the post-lesson debrief:

> I just did an annotation check, where I just very briefly flipped through their books and saw how many sticky notes they had. I looked at a few to see, honestly, mostly driven by curiosity, are they asking questions? Are they just like summarizing? Cause a lot of them do that, which I think is interesting. A lot of them, they'll have a big sticky note at the end of the chapter and summarize the whole chapter. And I'm like, hm, okay. I guess they will just have a mini sticky note novel at the end. If that's helpful to them, I'm all for it. (post-lesson debrief, February 21, 2018).

For Leslie, "I just thought [TodaysMeet] was interesting, and I wanted them to see what other people annotate" (post-lesson debrief, February 21, 2018). Based on her mentor teacher's modeling of TodaysMeet and Leslie's desire to try a new method of annotating text with her students, Leslie chose to use TodaysMeet as students read the assigned chapters.

At the start of the lesson, students were directed to open their Chromebooks and use their browser to go to a URL displayed on the overhead projection. "This site works a little bit like Twitter," Leslie explained to the class. "So as you guys post," she continued, "as you are reading, if you come across a quote that you really like, or something that's super confusing, or if you encounter a word and you don't know what the word means, so that you look it up. If you're confused about a word chances are half the people in this room are also confused about that word. So it would be helpful if you posted the word and then the definition. So you can put questions in there, you can put comments in there, you can put things that you're confused about." Leslie sensed some confusion as students begin to murmur at their tables about the task. She further clarified with, "So this should be something where like, oh I really like this

annotation. I think this would be a really good one for other people to think about. That's what I want you to put into the chat, okay?" Before the silent reading and annotating on TodaysMeet began, Leslie informed students that at the end of class, they would be respond to one annotation on TodaysMeet with a sticky note and turn in the sticky note.

The silent reading and annotating on TodaysMeet lasted 43 minutes. The early portion of the discussion was focused on the word zephyr and its definition (Figure 26).

Figure 26. First minutes of annotations on TodaysMeet.

Most student responses were questions and quotes as time went on (Figure 27). For some questions, students responded to each other, utilizing the @ symbol to direct their answer to a specific classmate.

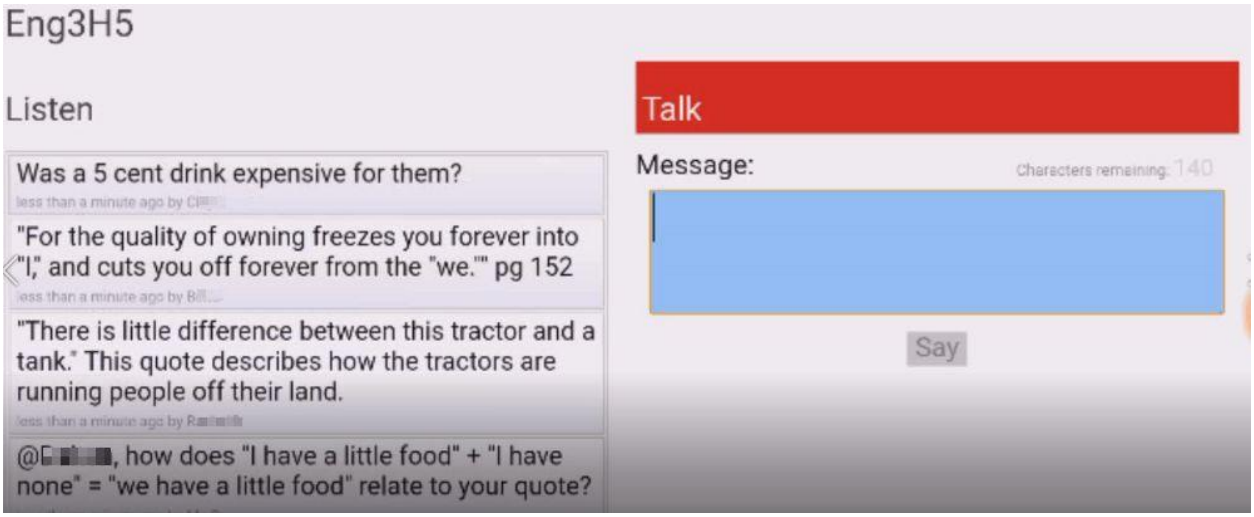

Figure 27. Example of student using @ symbol on TodaysMeet.

Students responded to questions posed by their classmates (Figure 28). When questions are answered by a classmate, students acknowledged the answer with thank you posts.

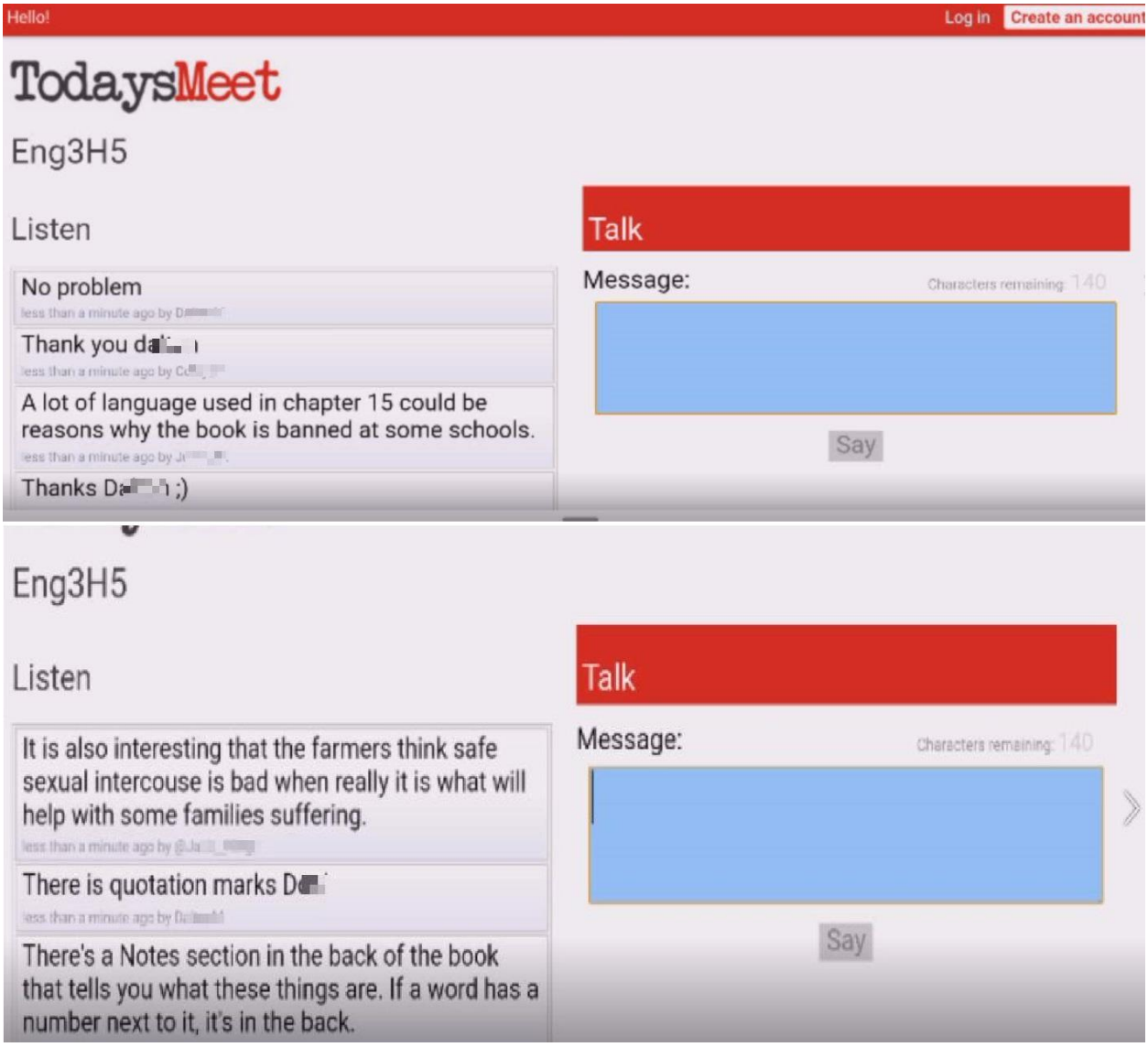

Figure 28. Students answering wuestions and “thank you responses.

During one early point in the discussion, Leslie posted the question “P 151 – Steinbeck is talking about zygotes and cells splitting. Can someone in AP Bio explain this analogy” to the feed. Two students responded to her post (Figure 29).

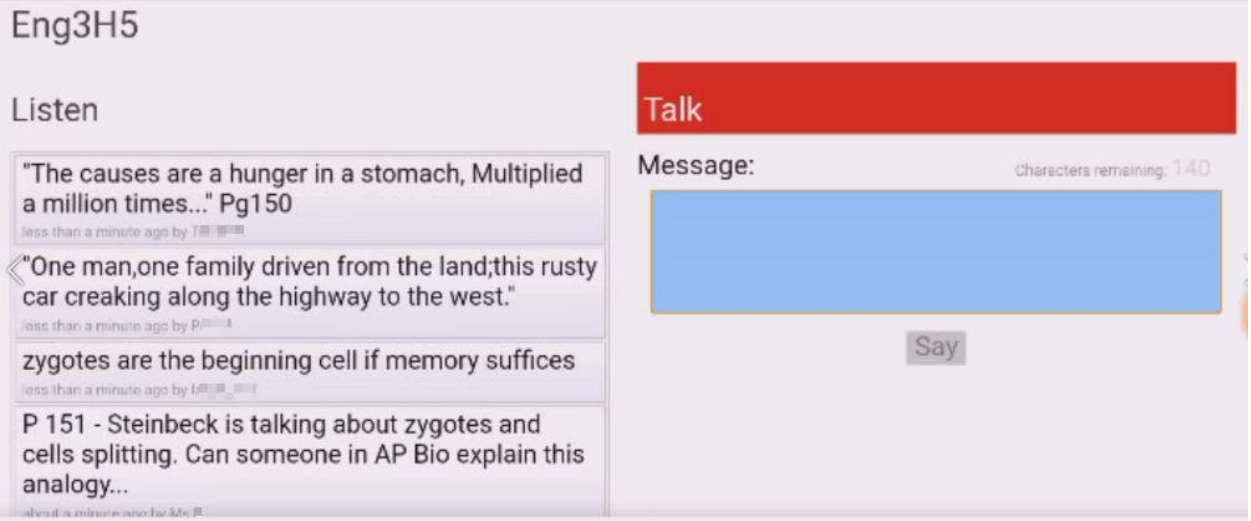

Figure 29. Leslie posts a question on TodaysMeet and student responses.

However, Leslie did not post any questions for the remainder of the discussion. While Leslie felt pressure to direct the conversation during whole class discussions, the annotations on TodaysMeet did not always require the same level of oversight, which Leslie commented on after the lesson was complete:

> I'm hoping they can get the same kind of stuff out of it. And even though it's a silent discussion I can still kind of direct it by adding things in there. [This hour], I didn't have to do that. I could have not done anything, and they could have been a self-sufficient, autonomous thing the whole hour. So, I like that I can be involved and kind of nudge and push and talk to individual kids and highlight good points and kind of fill the feed in case something dumb comes up and push it down. (post-lesson debrief, February 21, 2018)

The fact that the students did not need to be encouraged by Leslie to contribute to the chat played a part in her belief that students were willing to do the task and perhaps were getting something positive out of the experience.

During the TodaysMeet annotation lesson, students were tasked with reading and posting simultaneously during the lesson. The classroom was silent during the reading and annotations

aside from the quiet clacking of students typing on their Chromebooks. Students approached the task in three distinct ways. Most students balanced reading the novel with engaging on the TodaysMeet live feed. These students would read for 2-3 minutes and read the TodaysMeet live feed briefly, occasionally type a post, before returning to the novel. A few students read the novel during the lesson and only read the TodaysMeet live feed. For these students, the reading of the TodaysMeet live feed caused a momentary pause in their reading of the novel. Finally, a few students focused exclusively on reading and occasionally responding on TodaysMeet. These students, though they often had their novel open to create an appearance of reading, read the TodaysMeet feed continuously throughout the reading time and did not pause to read the novel. However, not all students that focused exclusively on the TodaysMeet feed typed responses. Specifically, two students were observed reading the TodaysMeet feed during the lesson and never typed a post.

These various modes of engagement used by the students were discussed immediately following the lesson. Leslie noted she witnessed a student, who claims to dislike English class, participating to a significant degree on the TodaysMeet live feed:

> **Researcher:** There wasn't [anyone who] was overtly off task. To me, I was really intrigued by the potential of that, because even though they're probably not going to read anyways. She's reading that TodaysMeet feed. He's reading it.
>
> **Leslie:** Right. And it's interesting because he, [the] one who was doing a lot, he literally said, he hates English on the way out. I'm like, that's so interesting, because you're pretty good at English.
>
> **Researcher:** And you're engaged all period.

Leslie: He likes to throw attitude, sometimes. He's great, and sometimes he's like, 'This sucks.' And I love him dearly. I just think it's so interesting. He's like, 'English sucks.' You just helped people understand in that and then you asked a good question and you were talking to people. (post-lesson debrief, February 21, 2018)

Directly following the lesson, Leslie believed that TodaysMeet had provided the students with an opportunity to increase their understanding of the novel through silent discussion. For Leslie, understanding the plot, important quotes, and themes were important outcomes for reading. TodaysMeet provided not only an opportunity for the students to discuss these elements Leslie wanted them to understand, but the platform captured their conversations for Leslie to review.

Leslie also reflected on the annotations that students produced during the lesson. TodaysMeet afforded her the opportunity to see what stands out to the students as they read. "It's like the same quotes kind of keep coming up. So I understand what's going to peak their interest or what's going to flag it for them. A lot more of them just straight quoted and didn't add any commentary… it's like a half annotation" (post-lesson debrief, February 21, 2018). It was important to Leslie to provide specific directions about annotating on TodaysMeet to the students. "I tried to be intentional in saying that you don't have to share everything. Just like the ones that you think are really thought provoking or would cause the most discussion or conversation" (post-lesson debrief, February 21, 2018). As her voice indicates, it was important that the students were thoughtful in their responses, which perhaps provided more targeted feedback to Leslie about their understanding of the important elements of the text.

At the time of the lesson, Leslie's goal was "to keep them engaged. And for them to still participate in something, even though it was originally structured to be an independent reading day" (post-lesson debrief, February 21, 2018). A week later, however, Leslie elicited mid-unit

feedback from the students. The results of the survey led her to change her approach to reading days, discussions, and activities, and led her to stop literature circles entirely. The feedback led to a significant shift in the way Leslie utilized digital technology in her classroom.

Mid-Unit Survey Results (Mar. 2)

On the first Friday in March, Leslie gave her students a Google Form survey. Students were asked to rate their favorite and least favorite activity done in class, their satisfaction with their grade, and provide suggestions to improve the class. After school while debriefing the day's lesson, Leslie focused her attention on the question, "Least favorite activity we've done so far has been…" (Figure 30).

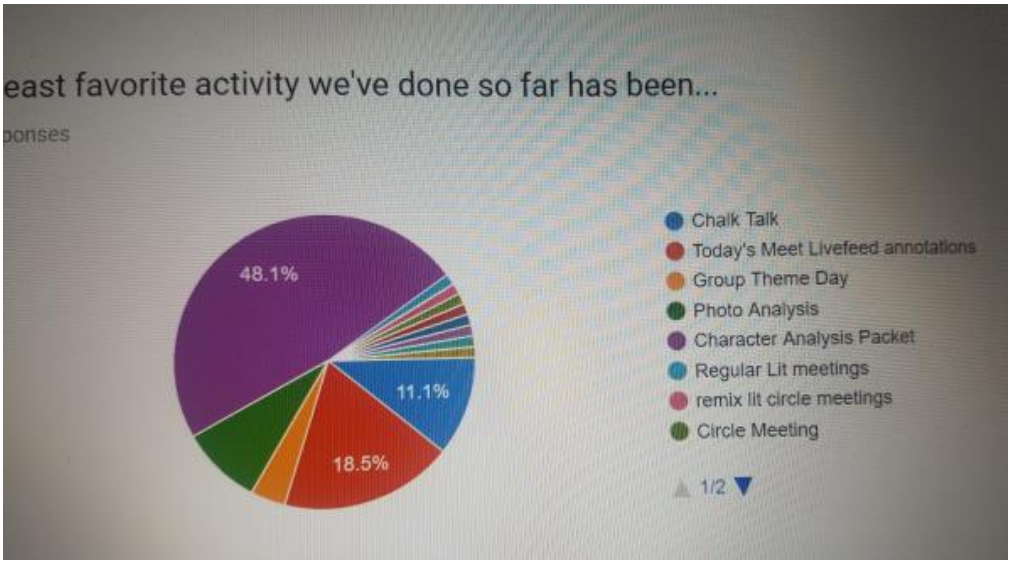

Figure 30. Poll results for question "Least Favorite Activity We've Done So Far Has Been…"

Forty-eight percent of the students' said their least favorite activity was a Character Analysis Packet, and Leslie was not surprised by this. She mentioned to her mentor teacher that the students had complained about the packet previously during class. However, 18.5% of students said they disliked the TodaysMeet live feed annotations. During a post-lesson debrief after school, she said, "They didn't like it. A lot of them didn't like the live feed." She reflected

on possible reasons for why the students were disliking the activity. For Leslie, the TodaysMeet provided more benefit to her, the teacher, than for the students. “Even though they didn't really like it, I really got a lot from the live feed annotations” (post-lesson debrief, March 5, 2018). She explained further why TodaysMeet was more beneficial for her as the teacher than to the students:

> It helped me see their train of thought as they're reading. So in that way it was very self-serving for the teacher. Then it was for the students, and I think that was probably why a lot of them were apprehensive about it. They didn't want their confusion up on the board. And they didn't want to look dumb or judged. So it was good insight for me. I don't think it was good insight for them. (post-lesson debrief, March 5, 2018)

Leslie was aware that she benefitted from capturing the students’ digital conversations, but she did not see her students as necessarily benefitting.

In her final interview, Leslie suggested that annotating should be tactile. “I feel like with close reading, for me it's such a tactile thing of like drawing arrows and circles and boxes with underlining” (post-study interview, April 12, 2018). Perhaps Leslie found that annotating digitally using TodaysMeet did not provide the same positive outcomes as annotating using physical sticky notes.

After reviewing the results of her class poll, Leslie brainstormed how she might adapt the TodaysMeet live feed annotations activity stating, “I think if I did it again, I would have them do it for a chapter they've already read and have them read it again, so they have something already written and it's not something that they're trying to comprehend and do this thing” (post-lesson debrief, March 2, 2018). When Leslie first learned about TodaysMeet, her mentor teacher had used it as a silent discussion. Though Leslie stated that she would like to try TodaysMeet as a

discussion tool for a chapter the students already read, Leslie never tried TodaysMeet again. Rather, for the remainder of her unit, Leslie relied on whole class discussion and other discussion activities that do not use the Chromebooks or additional technological tools. Her decision reflected her desire to meet the needs of her students and respond to the feedback they give.

Snowball Discussion (Mar. 12)

A week after the survey, Leslie began a Monday class, reserved for discussions and activities around the novel, with the routine of vocabulary and journal writing. After students completed their warm-up, Leslie instructed the students to close their Chromebooks but leave their physical journals out. Leslie projected a list of topics addressed in *The Grapes of Wrath*, asking each student to pick a topic they wanted to write about. Topics included nature, water, land, and animals. With topics chosen, students were instructed to write in their journals. Leslie instructed, "I want to challenge you to write for 10 minutes straight, no stopping. If you get stuck, I'm going to throw some things out there for you to think about." Students wrote silently for 10 minutes.

Leslie instructed the students to draw a line to divide their paper in half. "Now we're going to develop some questions based on the things that we brainstormed… Is there a question we can ask that is a considered a *3D question*? What does that mean? Not a yes or no, complex question, sparks debate or discussion or controversy." To solicit an example, Leslie called on a student to provide a question. The student responded, "What is the relevance of nature in *The Grapes of Wrath*?"

"Sure," Leslie said and proceeded to call on several more students for examples.

During the sharing out of questions, Leslie provided a connection she has made to the topic of land and water. "When I think about the Dust Bowl and water those two things still seem

like, I'm thinking of relating them to today. Those are still things that are happening today, right? We have Flint, Michigan. We have Standing Rock. Those are both major media things that have been involved with water. We have the climate is changing, with global warming and sea levels rising, ice caps melting. Is there a question we can ask about that?" After a brief pause, a student replied, "What connection can you make to nature stuff today?" Leslie reiterated the importance of relating the purpose of Steinbeck's novel to today. She asked students if they understood the process of formulating questions from the topics and gave the students three minutes write more 3D questions on the bottom of their paper.

For the last 10 minutes of class, Leslie facilitated a snowball discussion. Students were instructed to stand up, stretch, and take a deep breath. Then, they were to find a partner across the room and meet that partner in the middle of the room. The students talked to each other as they found their partner. Leslie instructed students to discuss their questions and decide whose question is "best and moves on to the next round." In other words, students were tasked with choosing the favorite question among the group members. That question would then remain with the group as they progressed to the next round. The room erupted with chatter as students worked on the task. For the next round, students were to find a pair and make a group of four. Again, students were to pick the best question in the group to move on to the next round. The students completed the task one more time, pairing their group of four with another group of four to form a group of eight. Students were instructed to find the best question from the group of eight. Leslie collected the questions from each group of eight, which resulted in four questions collected.

Debriefing after the lesson, Leslie stated her purpose for the snowball discussion. "I wanted to push the themes and the topics, and I wanted to push their formulating of the

questions, and I wanted them talking to each other because they asked for that. And the product is something I can use to extend and guide discussions that are coming up" (post-lesson debrief, March 12, 2018). Therefore, the goals for the snowball discussion mirrored her goals for the silent TodaysMeet discussion. Leslie wanted her students to focus on particular aspects of the novel that were important. While her mode of discussion changed from digitally mediated to face -to-face, the goal for the discussion did not. Leslie chose this activity as a direct result of the survey given the week prior, evidenced by her reference: "they asked for that." Furthermore, Leslie found that getting the students moving around leads to engagement. "They were really highly engaged," she said. "They were moving around." She planned to use the questions to help facilitate another discussion, which would take place in a week when the students finished reading the novel.

Whole Class Discussion After Completing the Novel (Mar. 19)

The following week, the students completed the novel. Leslie planned a whole class discussion of the end of the novel for her Monday activity. The focus for the day was to discuss the end the novel and examine the author's purpose of the novel's title. Leslie started the discussion with an open prompt for students to talk in small groups about the final chapters of the novel. After five minutes, she asked a student to share one important thing that happened. A student brought up how a character breast fed an old man. Leslie probed the student to say more asking, "So why end the novel that way?" and "What else happened?"

Leslie expounded and further explained certain points the students brought up. For example, Leslie asks why the character Jim Casy was murdered. A student responded, "He was being equal. He wanted things equal for everyone. That's how the communists were acting."

"Right," Leslie said. "So, he was becoming an activist for the migrant workers and families and wanted to stage the strike and help them revolt so they can get fair wages and not have all of this police brutality and the destitute situations they were in. So what does he do for these people?"

After a brief pause, Leslie said, "You guys just said it."

"He was their voice," a student responded.

"He was their voice," said Leslie. "And because of that, what happened? He died. So he sacrificed himself?"

"He was a martyr," a student said.

"Does anyone else know of, in history, perhaps, with the same initials?" Leslie laughed. A student said, "Jesus." Leslie used the novel's allusion to the Biblical story of Jesus to move the conversation to the title of the novel.

Leslie continued to feel pressure to control the direction the discussion. She said during the post-lesson debrief, "I have to direct them so much, but they need so much guidance at the end of the novel that it's kind of justifiable in my mind… it's not my normal teaching style but it's just kind of a necessary evil in terms of making sure they grasp all the things near the end of the novel" (post-lesson debrief, March 19, 2018). Leslie remarked feeling the same pressure to guide the discussion at the start of the novel and as the students read each week. In fact, she felt as though the students didn't understand everything they needed to understand:

> I was trying to get there at the end, but they didn't get there… I didn't get to the purpose [of the title], and I wanted to finish class with the purpose today, I mean there was so much talk about that. They just didn't unpack it. I think I'm going to start them tomorrow

with a journal prompt, look again at “Battle of the Republic” and think about the juxtaposition. (post-lesson debrief March 19, 2018)

Though Leslie was no longer using digital tools like TodaysMeet or Nearpod to support her teaching, she felt uncertain of the effectiveness of her lessons. In other words, eliminating the technology did not make Leslie feel more in control of her lesson outcomes. Rather, she remained unsure if her students were reaching the goals of the lesson.

Leslie’s Concluding Thoughts

Leslie reflected on her experiences teaching with technology during the final interview. When asked if she was pleased with her use of technology, she said, “I always feel like there's a different way I could have done it that uses something newer or more grabs their attention, because it's on a screen rather than on paper. I thought about using Nearpod for the initial annotation, and I just didn't. I don't know. It just seemed too techy to me” (post-study interview, April 12, 2018). Leslie also wondered if students were using technology too much in a school day. At the end of the study, she wanted her classroom to perhaps be a respite from technology:

Leslie: I've learned a lot from how they feel about it. Some kids by the time they come to my room in 7th hour they've been on Google Classroom all day. And that's just something, I don't know, the perspectives I've gotten about it.

Researcher: So that's a bad thing? You want them to have more variety?

Leslie: Yeah. I don't know, it feels like there is this push, like if there is Chromebooks in the room you should use them. They shouldn't be just gathering dust in the cart. But some days, I can't teach with a Chromebooks out because either they're not helping or they're distracting. It's not helpful if I do it on a Chromebook or the

> Chromebook is just another way for them to wander off. (post-study interview, April 12, 2018)

Leslie first brought up students' becoming distracted by technology in her first interview. "I worry about their attention spans. I feel so old-fashioned saying that. It's like *[snaps fingers]*, 'I'm more interesting than *FIFA* [the mobile game] on your phone.' I have to really stretch myself" (pre-study interview, February 7, 2018). Though she began her unit utilizing digital tools like TodaysMeet and Nearpod, by the end, she was not as willing to use the tools. Her lessons during the latter half of the unit relied on whole and small group discussions and activities that allowed students to talk to each other face-to-face, without devices, something students said they liked in the survey results. Leslie stated her own reservations about using technology, wanting students to not use Chromebooks during the entire school day. Leslie wanted to meet the needs of her students, including needs that they voiced directly to her, through the survey. However, she also projected needs onto her students, including the need to not be on the Chromebook during the entire school day.

Summary of Case 2: Leslie

In short, my chronicle of Leslie's teaching practice, digital technology, and purpose of technology in teaching practice is summarized below in Table 6. During the first part of Leslie's unit, she used technology in her teaching practice to provide opportunities for student engagement and discussion. While Amanda used Nearpod to provide more engagement during the lecture using Nearpod's collaborative activities, Leslie used Nearpod to enhance the visibility of photographs. In other words, the tool was used to make the photos visible on the overhead and on each student Chromebook. When using TodaysMeet, Leslie sought, like Amanda, to provide more interaction among students on a digital platform. After receiving some negative feedback

from her students regarding TodaysMeet, Leslie's shifted to having discussions without the use of digital tools for the purpose of providing face-to-face interactions.

Table 6

Summary of Leslie for Research Question 1 (How Do Interns Enact Teaching Practices in the Classroom?) and Research Question 2 (How Do Interns Use Digital Technologies to Enact Teaching Practices in the Classroom?)

	Teaching Practice	Digital Technology	Purpose of Technology in Teaching practice
Feb. 7	Pre-reading of novel lecture and photograph analysis	Nearpod	Provide opportunities for student engagement during lecture using digital technologies
Feb. 21	Annotating while reading a novel	TodaysMeet	Using digitally mediated discussions for student interaction during individual task (reading)
Mar. 2	Snowball discussion	None	Using face-to-face discussions to facilitate student learning
Mar. 19	Post-reading novel discussion	None	Using face-to-face discussions to facilitate student learning

Case 3: Barb at Arthur A. Middle School

Recording Oral Argumentative Essays in Google Docs (Mar. 12)

From the start of her internship, Barb wanted to use more in class than just the available devices at Arthur A. Middle School. By her argumentative writing unit in March, she realized she had relied heavily on the Chromebooks and rarely tried other devices or tools, stating in her first interview:

> I think my experience in actually [using technology], doesn't match my actual feelings about it. This probably comes back to theory. I have a lot of theoretical knowledge or theoretical ideas about how I could really incorporate these strong literacies that students have and that I have, but then I haven't really been given fantastic concrete examples in

> the field of how to do that. So I'm still doing a lot of, “Here is your Chromebook today.” (pre-study interview, February 14, 2018)

Barb’s desire to incorporate more ‘strong literacies,’ or digital literacies possessed by students, was limited to the devices and tools that were most frequently used by her mentor teacher.

The available Chromebooks had afforded her practice with Google Suite for Education, which she used almost daily. Considering the middle school age group of her students, Barb found that the Google Suite contained features that would be useful and engaging. “I really like doing random function tasks in Docs or Slides,” she said during her first interview. “I always remember that they're 12 so some of these things, even highlighting, I had to teach them how to do that this year. But now that I've taught that skill, highlighting and commenting, those kinds of things. They really like doing it. They really enjoy being able to pick whatever highlight color they want and highlight things” (pre-study interview, April 14, 2018). Up until her argumentative writing unit, her students were reliably comfortable with the functions of Google Docs and Google Slides, and they had even created their own website using Google Sites.

Despite a reliance on Google tools, Barb believed her students saw her as a teacher that constantly tried new things. She believed this was particularly true when it came to using technology:

> I don't know if [the students would] be able to articulate this, but I think they would definitely feel like I’m an experimenter and kind of go with the flow. More so than maybe some of their other teachers. But I think that they would definitely see me as that cause every day I go like, ‘This is new, this is new, this is new.’ And they are pretty comfortable with it now.” Barb’s identity as an “experimenter” was showcased at the start of her argumentative writing unit in March. (mid-study interview, March 12, 2018)

Barb found herself avoiding the conventional products used to show student learning in English Language Arts, particularly written essays. Her desire to use alternatives to written essays drove her to have her students create websites using Google sites. She explained, “We do a lot of work on Chromebooks. I had them do a website, which, personally, my thing was more like the reason why I wanted them to do that, was I didn't want them to write an essay. And that was my big thing” (pre-study interview, February, 14, 2018). As a result, Barb knew as she planned her argumentative writing unit that she wanted to expand what counted for writing arguments in the class.

Barb decided she wanted to focus on argumentative *oral* arguments, rather than argumentative *written* arguments. She made this decision after realizing her students lacked skills at what she termed “conversational arguments.” Her reading of student responses to an online discussion board prompted the line of thought that lead to this decision. During her first interview, she described reading her students’ responses:

> I was like, “We're going to do a discussion board. You're going to post. And you’re going to respond.” And the responses are where they really fell short of what I was expecting them to do. I realized something that is lacking in my students is the response, the listening part of an argument or a discussion. They're very, “This is my stance, and I'm going tell you about it. This is what I'm thinking, I'm going tell you about it.” And a lot of their responses were either inappropriate, not related, or didn't take into consideration, the answer that their classmate provided. So how can we really work on this skill?” (pre-study interview, February 14, 2018).

Thus, Barb thought it imperative that her students practice the skill of arguing appropriately in-person and on-line.

Barb planned her argumentative writing unit around these "conversational arguments," that would work directly on the skills she believed her students lacked. She wanted her students to become comfortable with speaking rather than writing their ideas. Before her lesson, Barb stated her purpose for the unit: "I want students to recognize that the way we talk to each is argumentative, and it doesn't have to be a fight. But it also doesn't have to look like this formal piece of writing" (post-lesson debrief, March 14, 2018). Rather than brainstorm ideas for an argument by typing on a Google Doc, Barb decided to have her students use the Voice Typing tool, a feature of Google Docs. Barb believed that talking is one method of thinking, which is a concept that Barb understands is not always accepted by all teachers. When asked about permitting a certain amount of noise during class, Barb answered, "The kind of message that has been sent to us [interns] is that thinking doesn't look like sitting and staring into the void. Thinking is talking with people and expressing ideas. Going off task, to me, is a train of ideas. It's just not the train that [teachers] want you to be on" (post-lesson debrief, March 7, 2018).

On the day before the lesson, the students read and annotated the poem "This is Just to Say," by William Carlos Williams. To start the lesson, Barb instructed the students to obtain the assignment sheet from Google Classroom, which was a familiar task, and students completed it quickly. Barb said to the class, "Now, you are going to write an argument essay answering the questions: Is the speaker sorry or not? Rather than typing your essay, do this by speaking clearly into your Chromebook's microphone using the Voice Typing feature in Tools." The noise level of the room grew, as students began to ask their neighbors and Barb about the microphone and the Voice Typing tool.

Using the assignment sheet to guide her instructions, Barb informed the students that their essays must include a hook, textual evidence, a counterargument, and a summary. A student

said that he did not know what a counter argument was. Barb directed him to the notes where the class had previously defined these terms. Barb went over the directions more: “You are not allowed to type on your Google Doc.” Students were visibly and audibly disrupted by the directions, as they talked to each other excitedly about the assignment. Barb, however, did not directly address the apparent apprehension of students and continued with the directions.

Barb demonstrated the Voice Typing tool for the students. On the overhead projector, Barb projected a new Google Doc she had created. After selecting the Voice Typing tool, she said, “Hello,” into her microphone. The word “hello” typed quickly onto the Google Doc. A few students reacted loudly, exclaiming, “Woah!” Barb instructed them that to perform the equivalent of pressing ENTER on the keyboard and start a new line, the students would need to say the phrase “new line” into the microphone. After informing them that their oral argumentative “essay” is due at the end of period, the students were given the rest of class time to work.

After a few minutes, students were hesitant to start. Many were looking around the room, observing what their classmates were doing. One student put up folders around her Chromebook, shielding her face and screen from the rest of the class. Another student put in headphones with a microphone on the cord and began to quietly talk into her microphone, which she held close to her mouth with her fingers.

Barb announced, “I don’t want you typing. I want this to be your spoken word. I don’t want you to worry about conventions and grammar. Do your best. This is new.” She continued to circulate, encouraging students to keep trying. A student raised his hand and asked, “Why aren't’ we typing?” Barb responded to the student with, “You have the next 15 minutes to finish your

essay." The student responded with, "Isn't this *writing* class?", a resistant comment that Barb did not acknowledge.

As the minutes passed, many students were talking into their Chromebooks, some with headphones in and others speaking directly into their Chromebooks. "Where is the microphone?" one student asked loudly as she picked up her Chromebook and look underneath. Barb pointed above the screen of the Chromebook to answer the student's question. The student who had been quietly talking into her microphone since the start of the work time told Barb she turned in her essay. Another student said loudly into the microphone, "NEW LINE!" A student sitting near her laughed and said, "My computer picked up 'new line.'" While most students were making some attempt to complete the task, 3 students sat quietly at their desks and did not speak into their Chromebooks.

The bell rang as most students were still speaking into their Chromebooks. "Please turn these in!" Barb announced as students started to close their Chromebooks and stand up. Barb turned to her mentor teacher Ms. Phelps who was sitting at her desk and said, "You want to keep them silent? Make them talk." A student walked by Barb on her way to the door and said, "I talk so differently from what I write." Barb agreed, repeating the comment to Ms. Phelps.

Following the lesson, Barb debriefed her thoughts about how the students responded to the lesson. "What I anticipated was students messing around. What I didn't anticipate was them not doing it" (post-lesson debrief, March 14, 2018). She hypothesized why so many students showed resistance:

> I've gotten them to talk in groups before, and they are comfortable doing that now. But this required them to do it on their own. They had to hear their own voice. They had to do this argument on their own, and people could hear them. And I'm not sure exactly where

> the anxiety came from… I think it was mental. They didn't want to hear themselves or they thought people could hear them. It was this weird anxiety that came across. (post-lesson debrief, March 14, 2018)

Overall however, Barb was pleased with how students responded to the assignment, even if there was some resistance. The purpose of the lesson, for Barb, was to reorient students to crafting arguments orally. Furthermore, she wanted to use the technology in a way that also taught the content, which was a goal of Barb's, which she explained during her final interview:

> I think the pit fall is to say, "I'm going to engage students with technology." Whereas, you have to take it one step further and say, "I'm going to engage students with the content with technology." And I think that's what I'm attempting, because literally, I didn't think any further than just being like, "They're going to use their voice in the end product." I want them to use their voice in this product. But I wasn't like, "This is kind of like Siri." (post-study interview, April 12, 2018)

In this way, Barb hoped the lesson would be both authentic to the kinds of tools students may use every day, such as Siri, but also uses those tools to teach the content of argumentative writing.

"Conversational Arguments" Small Group Oral Argumentation

The oral essays using the Voice Typing tool in Google Docs served as preparation for the students' ultimate task: prepare and participate in quick "conversational arguments" in small groups around a specific topic. This culminating task aligned with Barb's vision for the kind of classroom she wanted to foster. During a post-lesson debrief, Barb discussed her view of argumentation and ELA. "If I had to categorize myself, I'm more along 'everything's an argument.' We're all arguing all the time. And in order to be critical, you have to have a dialogic classroom in order to get that to go through" (post-lesson debrief, March 19, 2018). After turning

in their oral essays and to prepare for their conversational arguments, Barb had the students pull up their oral essays on their Chromebook. She had asked them to highlight on their Google Doc four elements, which Barb termed "essay elements," of an argument: the hook, textual evidence, counterargument, and summary. The four elements would become the foundational elements students would use to craft arguments while in conversation with a small group. "I want them to recognize that in a conversation," she explained during a post-lesson debrief, "even conversations I'm having with you right now, are not argumentative and angry, but I'm arguing for something. I have a purpose" (post-lesson debrief, March 14, 2018). As she planned for the lesson, Barb stated, "I want them to recognize the elements that we would typically put in an essay and apply them to conversations. Mostly the purpose behind this is I want them to start making the connection that just writing an argument, that's not the whole package of argumentation. Argumentation happens all the time, and it's way more healthy to practice healthy argumentation in conversation" (post-lesson debrief, March 14, 2018).

After highlighting the four elements in their own oral essay, Barb had the students practice identifying the elements in various clips from television shows from YouTube, such as the popular show *Stranger Things*. While watching a clip, students would write down examples they heard of hooks, textual evidence, counter arguments, and summaries. On the day before the conversational arguments were to be completed in class, Barb had the students form groups of four to five students, each assigned a high-interest topic. She informed them that tomorrow, they would complete their conversational arguments about the topic given. One group would sit at the front of the room, and the group would have four minutes to complete their "arguments," each student attempting to use all four essay arguments during their time. Students in the audience would complete an evaluation worksheet (Figure 31). Audience members would rate the quality

of the group's use of the four elements. Barb assigned this task strategically, as the students in the audience would have to understand the four elements to know when their classmates were appropriately using them.

Conversational Argument Tracking and Grading Worksheet

Step 1 - On the back of this rubric, there is a tracking sheet with ALL of the Conversational Argument concepts that I would like you to track. While groups are presenting, follow the directions for each part and fill out the worksheet.

Step 2 - After the conversation, complete the rubric as if you were to grade your peers on their Conversational Argument performance.

Categories	Rank 5 Description	Rank
Hook	Grabs listeners attention and invites other group members to participate in conversation	5 4 3 2 1
Textual Evidence	Several pieces of textual evidence are cited	5 4 3 2 1
Counterargument	More than one point of view is brought up in conversation	5 4 3 2 1
Summary	The summary is strong; participants and listeners are left with a strong understanding of the topic and how it was supported	5 4 3 2 1

Focus Stays on topic. Group members pose questions if conversation strays off topic.	Evaluate the focus of the Conversational Argument (at least 2 sentences)
Participation Everyone is speaking and did their part in both speaking and creating the argument.	Evaluate the groups participation (at least 2 sentences)

Figure 31. Conversational argument evaluation worksheet used by students.

To assist audience members in their identification of the four elements, members of the group participating in the conversational argument were given colored cards (Figure 32). Each card indicated to the audience a use of one of the four elements.

Figure 32. Colored cards indicating the use of one of the four elements.

For example, if a student having a conversational argument used a direct quote or made a connection between sources, a student would put a teal colored card on the table. When a he or she said a counterargument, a student would put down a salmon card. As the students were not being graded individually, but rather as a group, the cards were communally used by the group to indicate any group member's use of an element.

After a group's four minutes were up, audience members would turn over their grading worksheet and complete a final analysis of the conversational argument (Figure 33).

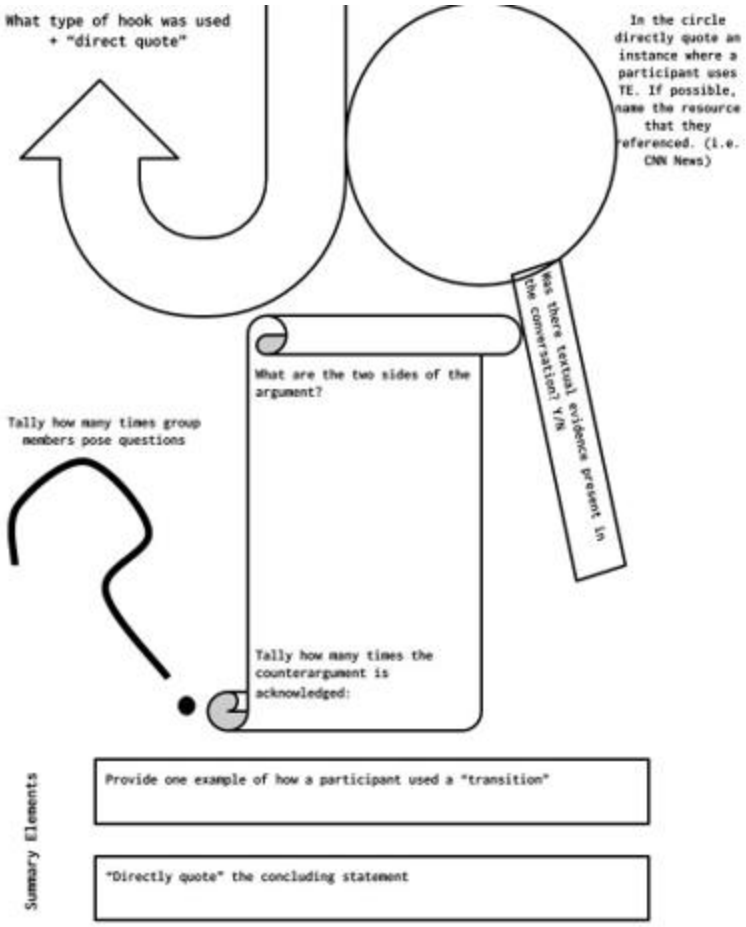

Figure 33. Final analysis of conversational argument handout.

Once again, the worksheet was another way for Barb to evaluate students' understanding of the four elements and how group members used them during the conversational argument.

On the day before the conversational arguments were to take place, students were given the rest of the hour to work individually on researching and brainstorming different hooks, textual evidence, counter arguments, and summaries they could use during their conversational argument. During an interview prior to the day students would complete their conversational arguments, Barb expressed her excitement for the culminating lesson: "I'm really excited about this. I'm excited about what it could be, I'm excited about what it also could not be. I'm just excited" (post-lesson debrief, March 19, 2018). However, she also had concerns about the

success of the lesson, stating, “The only thing that I don't want is them to be too frustrated to do it. I’m self-conscious that I've been a terrible teacher for the last week and have not given them any resources and I'm just like, ‘Oh this is going to go terribly’” (post-lesson debrief, March 19, 2018). Despite her fears, Barb concluded that she hoped her students would try, but she didn’t expect a particular outcome. “I really don't have any expectations. I expect that you try. I really don't have any other expectations other than that. Cause I know it's weird and difficult what I'm asking them to do.”

The day of the conversational arguments, Barb started class by providing students with five minutes to talk in their groups. The order of each group presentation, along with an interactive timer was projected on the overhead (Figure 34).

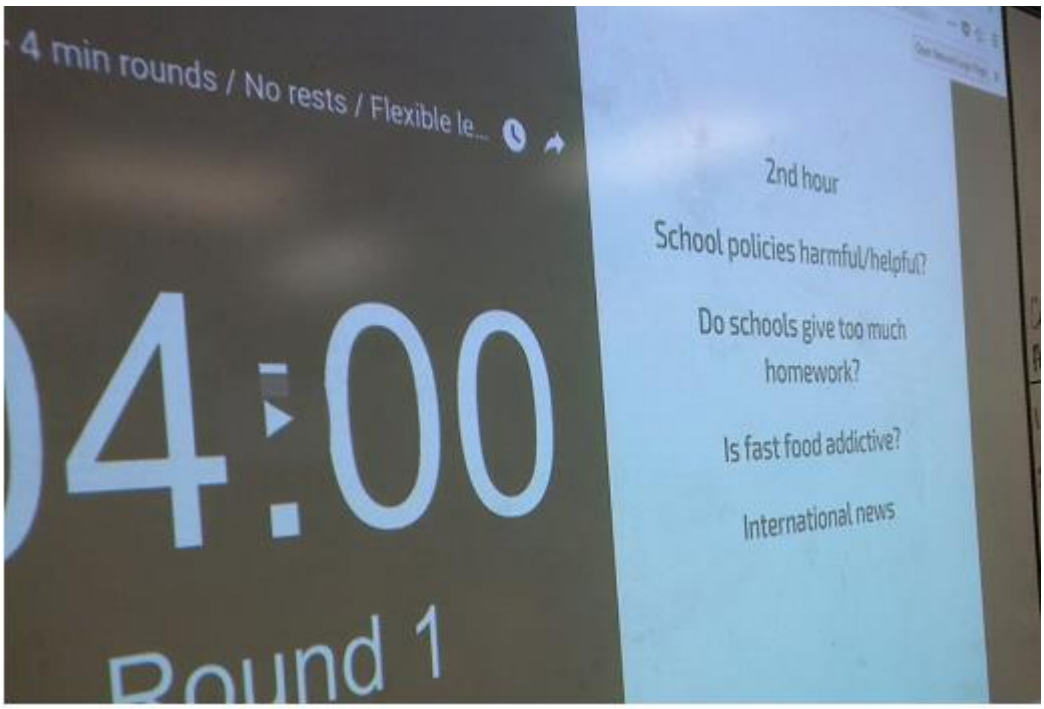

Figure 34. Overhead projector during conversational arguments.

Barb circulated the room, passing out to each student a packet containing four copies of the conversational argument grading worksheet. Students were instructed that they would be

using one sheet for each of the four groups. She announced to the class, “We are doing this conversational argument today. I would like you to prepare yourselves mentally for this. Remember, you’re just talking about your topic for four minutes.” Barb was purposefully vague in her explanation to the students about expectations because of her goal of having the students try this new task without any high stakes. Despite this, the students were still tasked with grading each other’s conversational arguments, though those grades would not be reflected in their actual grade for the class. “Remember,” she continued, “I have nothing to compare this with. You’re the first groups to go, so just do your best. This is going to be weird and exciting. And tomorrow will be a brain break day. It’ll be an easy day, I promise.” Barb reminded the students in the audience to be silent and focus on completing their tracking of the four elements during the conversational argument.

The first group moved to sit at the front table. The first group’s topic was “School policies harmful/helpful?” Barb asked the group if they were ready. A few students responded, “Yeah,” and Barb told the group to begin.

“Do you guys really think that dress code is really necessary?” Ben said.

“Not at all,” Hillary said.

“Nope,” said Kenzie.

“Why?” asked Ben.

“Well, first of all, it’s, you know,” Vinny stutters. “It’s pushed more towards girls anyways than as guys.”

“That is true,” said Ben. “But, don’t you think that…” Ben paused and then said, “girls should cover themselves?”

“Yes,” Kenzie said quietly. “But not to the point we should hide who we are.”

“Do you think it’s more distracting to guys?” Vinny asked.

“No,” Kenzie responded. “They don’t have to look if they don’t want to.”

The group was quiet for a few moments, as a Ben began to mutter to Vinny sitting next to him. Though each student had a set of colored cards in front of them, none of the students had help up any indicators that they were using an essay element.

Vinny briefly shared a story about a girl he read about that got “dress coded” for cutting her hair. Vinny picked up a teal card indicating the use of textual evidence and slammed it into the middle of the table, causing Ben to laugh.

“Isn’t that the one where she shaved her head bald to help her friend with cancer?” Ben asked.

The audience members were silent as they listened. A few students were seen writing on their packet, particularly when Vinny help up the teal card. Students in the audience could briefly be heard talking quietly, though they were quickly silent once again.

Vinny and Ben talked back and forth about the girl who shaved her head. Kenzie interrupted with, “Well, the good thing about a dress code is that it does cover up things that should not be showing.” Kenzie held up a salmon colored card indicating a counterargument.

“But isn’t that just saying that boys can’t control themselves?” Ben asked.

“Because of age,” Kenzie responded.

“Okay,” Vinnie said, “Let’s switch over to technology.” Though no colored cards were held up, students in the audience were seen writing in their packets, perhaps indicating their awareness that a hook was used to change the topic.

“I think everyone can agree that it’s helpful,” said Ben.

“Is technology helpful?” asked Vinny.

The group was quiet for a moment. “So, how is it helpful?” asked Vinny.

“Well it’s a lot easier to do, like type our essays. Teachers have a lot they can do,” said Ben.

“Yeah, it helps teachers,” responded Vinny.

Kenzie discussed how having a computer at home helps you do your school work you don’t finish in school. There was a pause before Vinny held up a salmon colored card indicating a counterargument and said, “But there are some bad things about technology. That sometimes kids use them wrong. They get on games when they’re not supposed to. That’s why there’s apps where teachers watch their students.”

“Aren’t most apps with games blocked?” asked Ben.

“No, they’re not,” said Vinny.

“What about cursive,” said Kenzie. “They don’t teach cursive anymore.”

There was another pause, before Vinny described how nobody used books anymore, because you can look it up on the computers. The group members began to talk over each other briefly before Barb alerted them that their time was up. “Good job,” Barb said. “I am so pleased right now. You have no idea,” she said. She instructed the class that they have five minutes to finish their packet before the next group started. The next three conversational arguments were completed. The final group with the topic, “International news” spoke the least. While one member brought up a few arguments, the other group members were silent, and Barb ended their time early.

The following day during a post-lesson debrief, Barb discussed how the students were willing to try, and she was proud of them for that. Without her students’ openness to new lessons, she would never have had the opportunity to attempt the lesson. “I told them in the

beginning of the conversational argument, I was like, 'I don't know how this is going to go. You guys are going to help me figure this out'" (post-lesson debrief, March 21, 2018). Barb believed her students were a resource that allowed her to try out new ideas. When using new technology, involving students in the process of trying was key for Barb, which she described during her final interview: "[The students are] resources for you. If you think you have an idea, they're going help you as well. Go for it and utilize your students as resources in that process of going for it" (post-study interview, April 12, 2018).

Barb's Concluding Thoughts

Barb was proud that she was able to provide her students with an opportunity to complete an argumentative writing unit where they didn't write traditional essays but still learned the skills she wanted. "I thought that the conversational argument went really well," she said during her final interview. "To the point where I know that they can do the things that I wanted them to be able to do, like use textual evidence. Those kinds of things" (post-study interview, April 12, 2018). She continued on to say, "I'm most proud of at least accomplishing the conversational argument, because when I started it, it was a brain seed. And it became a brain baby. And that was good, and it didn't flop. So that was cool" (post-study interview, April 12, 2018).

Barb expressed that how she teaches with technology has changed, but her overall beliefs about teaching with technology remained the same. Before her internship, she found that she had many ideas of ways to integrate technology, but she found these ideas unrealistic or inappropriate after teaching for some time, which she discussed during her final interview:

> I think how I go about introducing new things or how I approach doing things that are cool and hip, that has changed for sure. Because I think it was really easy to sit in a classroom last year [before my internship] and be like, "I'm going to use Twitter.' And

> then I come to class and find out literally zero of my students have Twitter, for one. And they don't want that. At all. It's different. So I think my beliefs haven't changed on what we can do and what we should do. But how I go about incorporating new things or doing things probably has changed. (post-study interview, April 12, 2018).

Technology-use required both knowledge of the tools as well as consideration of how to incorporate them effectively into a lesson. Barb couldn't accurately and completely predict her students' technology knowledge and home-use of tools, but she actively adapted her use of technological tools to accommodate what her students would be more interested in using.

Barb's reliance on trying new things, and letting the students know as much, provided her the freedom to try things even if she didn't exactly know how they would turn out. For Barb, it was the trying that was important: "I think if you have an idea, that you think is going to be cool or good, I think you should roll with it. Go for it…even if you don't know exactly how it'll all turn out. You don't know if it's going to totally bomb" (post-study interview, April 12, 2018). Being a teacher that tries new things, an "experimenter," required for Barb a trust in the worthiness of the new tool or task and a trust that her students would try right along with her.

Summary of Case 3: Barb

In short, my chronicle of Barb's teaching practice, technology use, and technology-purpose in teaching practices is summarized below in Table 7. Barb expressed a desire to alter the task of writing argumentative essays to more authentically represent the arguments her students make on digital platforms. As a result, her students composed argumentative essays orally using a digital tool to record the spoken word. While Amanda and Leslie focused primarily on discussion and student interaction, Barb used technology in her teaching practice to align writing instruction with her students' digital literacy practices. Students prepared for the

final task of the "conversational argument" using digital technology to capture and record their spoken arguments.

Table 7

Summary of Barb for Research Question 1 (How Do Interns Enact Teaching Practices in the Classroom?) and Research Question 2 (How Do Interns Use Digital Technologies to Enact Teaching Practices in the Classroom?)

	Teaching Practice	Digital Technology	Purpose of Technology in Teaching practice
Mar. 12	Oral argumentative essays	Google Docs	Use digital tools to alter the writing process to capture and record the spoken word
Mar. 19	"Conversational arguments" small group oral arguments	None	Digital tools (Google Docs) used to prepare for oral arguments

Summary of Three Cases

Amanda, Leslie, and Barb's teaching practices, use of digital technologies, and purpose of technology in teaching practice are summarized in Table 8 below.

Table 8

Summary of Results to Research Question 1 (How Do Interns Enact Teaching Practices in the Classroom?) and Research Question 2 (How Do Interns Use Digital Technologies to Enact Teaching Practices in the Classroom?)

	Teaching Practice	Digital Technology	Purpose of Technology in Teaching practice
		Amanda	
Feb. 6	Pre-reading of literature discussion	Nearpod	Using discussion to facilitate student learning
Feb. 15	Mini-lesson direct instruction of writing	Nearpod	Provide opportunities for student engagement during lecture using digital technologies
Feb. 22	Post-reading of literature discussion	TodaysMeet	Using discussion to facilitate student learning
Feb. 27	Annotating while reading short story	TodaysMeet	Using digitally mediated discussions

Table 8 (cont'd)

		Leslie	
Feb. 7	Pre-reading of novel lecture and photograph analysis	Nearpod	Provide opportunities for student engagement during lecture using digital technologies
Feb. 21	Annotating while reading a novel	TodaysMeet	Using digitally mediated discussions for student interaction during individual task (reading)
Mar. 2	Snowball discussion	None	Using face-to-face discussions to facilitate student learning
Mar. 19	Post-reading novel discussion	None	Using face-to-face discussions to facilitate student learning
		Barb	
Mar. 12	Oral argumentative essays	Google Docs	Use digital tools to alter the writing process to capture and record the spoken word
Mar. 19	"Conversational arguments" small group oral arguments	None	Digital tools (Google Docs) used to prepare for oral arguments

CHAPTER 5: DISCUSSION

The purpose of this study was to examine the enacted teaching practices using digital technologies of three secondary English Language Arts pre-service teachers. Using a multiple case study design, three descriptions of enacted teaching practices of the three interns were described in the previous chapter. Four essential themes emerged across the cases: to expand student notions of literacy, to meet the societal imperative for student competencies in digital literacies, by using discussion to facilitate student learning, and by advancing teaching practice into new territories of technology integration. These themes represented how and why the interns plied (or did not ply) new literacies in their teaching using digital technologies in their teaching.

The three research questions guiding this study were as follows:

- Q1: How do interns enact teaching practices in the classroom?
- Q2: How do interns use digital technologies to enact teaching practices in the classroom?
- Q3: How and why (if at all) do interns ply the new literacies made possible by digital technologies when they enact teaching practices in the classroom?

Summary of Findings

Enacting Teaching Practice with Digital Technologies

Amanda sought to improve engagement in discussions with her students using digital tools. She wanted to solve a problem of students not participating in discussions or interacting with their classmates. First, she utilized the interactive tools within Nearpod to provide avenues for students to share ideas and discuss more frequently during lessons around literature study. Rather than ask students to verbally share their thoughts or reactions, Amanda used collaborative boards and open-ended questions in Nearpod to solicit students' ideas. She also utilized the kinds of digital texts that motivate students, such as videos, podcasts, and fanfiction (Alvermann et al.,

2012; Barone, 2012; Clark & Marinak, 2011). Second, she utilized TodaysMeet as a backchannel chatroom during and after reading in class. Students are engaged when they collaborate or share around digital literacies (Tierney et al., 2006). To this end, all of Amanda's technology integration was centered on enhancing discussions in her classroom, a goal that she frequently discussed.

Despite her continuous use of Nearpod and TodaysMeet, Amanda claimed that she had low levels of technology knowledge and skills. She lacked confidence in her ability to use technology appropriately and effectively in the classroom. She learned about new tools and teaching strategies primarily from her university peers and colleagues in her school placement. Amanda felt unsure of how to utilize technology in purposeful ways during discussions. It was not until the end of her internship did Amanda feel that she had just begun to understand how to align the tool to the teaching strategy. Though she believed she had limited technological knowledge, she was relentless in her effort using digital technologies in her teaching practice.

In sum, Amanda's teaching practice with digital technologies is described as the following profile: Limited technological knowledge with relentless use (see Table 9 at the end of this section).

Leslie wanted to engage her students with a novel through traditional ELA teaching practices, such as literature circles, character analyses, and explorations the historical context of the novel. She dedicated certain days each week for students to engage with the text through various activities. Often, these activities provided students with opportunities to discuss various aspects of the novel. Leslie utilized Nearpod and TodaysMeet early in her literature unit. Nearpod was used to better project information and images to students, as the tool made her slides available on each students' Chromebooks. Though the tool improved the classroom

environment, Leslie did not use Nearpod to change or enhance the learning of content, and the tool was not used to mediate student interaction or discussion. Keeler (2008) and Ortega (2013) similarly found that pre-service teachers used technology tools for purposes other than teaching English content, such as classroom management. Later, she used TodaysMeet as a public space for annotating and discussing the novel as students read. While Leslie and Amanda both focused on the reading of literature, neither participant had their students read the literature on digital devices. Research has found that reading on digital devices is more motivating and engaging for students (Brown, 2016; Cardullo, Zygouris-Coe, & Wilson, 2017; Simpson, Walsh, & Rowsell, 2013). However, the use of TodaysMeet to annotate while reading, done by both Leslie and Amanda, led to students discussing vocabulary, plot elements, questions they had, and connection they made publicly. Henry et al. (2012) found that reading comprehension was improved when students coached and shared ideas digitally. Leslie stopped trying new digital tools in her teaching after receiving feedback from students suggesting they did not like using TodaysMeet. As a response to the feedback, Leslie relied on strategies such as snowball discussions and whole class unstructured discussions.

Leslie's mentor teacher was dedicated to teaching with technology and had high levels of knowledge and experience with digital technologies in the classroom. Leslie was less dedicated to teaching with technology, in that she stated on multiple occasions that she worried students used technology in school too frequently. She never mentioned lacking confidence in her technological knowledge, but she avoided using digital technologies that made lessons seem overly complicated to her. Overall, Leslie enacted teaching practices using digital technologies to some degree, but her goals for her teaching were not tied directly to the use of technology. As a result, she was able to achieve her goals without utilizing digital tools.

In sum, Leslie's teaching practice with digital technologies is described as the following profile: Skeptical with tapered use (see Table 9 at the end of this section).

Early during her internship, Barb had her students participate in a discussion using an online discussion board. She was unsatisfied with the quality of responses. Furthermore, Barb felt that in general young people were unskilled at writing arguments online that were sophisticated and respectful. She also did not want her students to compose traditional written essays in her class. While Amanda and Leslie focused on discussions around literature, Barb focused on teaching argumentative writing. As a result, her enacted teaching practice using digital technologies was primarily for writing instruction. Barb wanted to teach her students a skill she termed "conversational arguments." First, students composed essays into Google Docs using the "Voice Typing" tool. The goal of the lesson was for students to compose using their voice and allow the tool to capture their speech. Students then participated in small group oral arguments and worked to utilize certain aspects of argumentation including hooks and providing evidence. Barb was creative in her teaching practice, utilizing technology to enhance her teaching, which was based on activities and assessments of her own invention. In this way, Barb was carefully considering how the assessment aligned with the task, which is not always considered with new literacies (Karchmer-Klein & Shinas, 2012)

Barb's teaching was never centered on trying a variety of tools. Rather, she relied on the Google Suite of tools consistently throughout her internship. Though she discussed wanting to use social media and other digital tools used frequently by her students, she found it challenging to make that work in the context of a rural middle school. Barb described herself as a risk taker and experimenter, and she frequently told her students she was trying something new with them. Barb spoke about wanting systematic change in the education system and perhaps wanting to

eventually work in education policy. Though she promoted awareness of cultural power relations in her personal life, Barb did not directly teach her students about critical literacy for the purpose of promoting social justice (Morrell, 2005). Also, Barb felt empowered to try new things in her placement, a result of her mentor teacher's trust as well as Barb's own identity as an intern. For Barb, she wanted to use the opportunity of the internship to teach in ways that aligned with her identity.

In sum, Barb's teaching practice with digital technologies is described as the following profile: Singular tool with creative use (Table 9).

Table 9

Summary of Interns' Teaching and Digital Technologies Profiles

	Technological Descriptor	Technology Integration Descriptor
Amanda	Limited technological knowledge	Relentless use
Leslie	Skeptical	Tapered use
Barb	Singular tool	Creative use

Plying New Literacies in Teaching Practice

According to Leu and Forzani (2012), new literacies emerge when ever changing technologies impact the literacy practices of groups. Therefore, in order to ply new literacies in teaching practice, teachers must not only have knowledge of technologies, but also the digital literacies surrounding those technologies. Beliefs about literacy also change because of technology (The New London Group, 1996). The findings suggest that PSTs' beliefs about technology and literacy were aligned to new literacies theory. They each agreed that young people today use technology to such a degree that literacy practices can no longer be separated from technology. New literacies scholars have suggested teachers expand the notions of literacy to include the digital texts young people encounter in their lives out of school (Leu et al., 2017; Moje, 2009). The participants in this study valued digital texts, demonstrated through their use of

YouTube videos and images during instruction, and to a lesser extent, podcasts, e-books, and Web 2.0 documents. Lapp et al. (2012) agreed that teachers must have expanded notions of text to fully value the literate lives of their students.

The participants of this study believed that teaching digital literacy was imperative. O'Brien and Scharber (2008) expressed the importance for people to be digitally literate. The Internet is the most influential singular technological innovation impacting literacy practices to date. Reading on the Internet requires new literacy skills. Students however continue to be unskilled at reading online (Leu et al., 2015). Part of digital literacy is possessing the essential critical literacies to understand the greater systems of power at work in a society (Morrell, 2005). The intern participants of this study agreed that an essential function of their job as English teachers was to teach digital literacy to their students.

The interns predominantly used digital tools to facilitate discussion, and they believed that learning through discussion was an important teaching model for teachers to use. As presented earlier in Chapter 1, Figure 1 is adapted here into Figure 35 to represent the interns' focus on the emerging theme from new literacies: digital (global) communication. The emerging theme of digital (global) communication is circled in red. Three classroom activities were used, represented by the red ovals, by the interns: online reading/consuming, social media, and collaboration in digitally mediated spaces. The tools Nearpod and TodaysMeet allowed students to read not only the instructions for classroom assignments online but also interact and answer discussion questions. The collaborative boards of Nearpod and the live feed of TodayMeet served as social networks of the classroom but mimicked the look of open social network platforms such as Twitter (collaborative board) and Facebook or Twitch (live feed). Finally, their students collaborated in the digitally mediated paces of Nearpod and TodaysMeet around the

topic of literature study. Particularly, the students chatted as they read, using the live feed of TodaysMeet to make meaning making a public and collaborative activity.

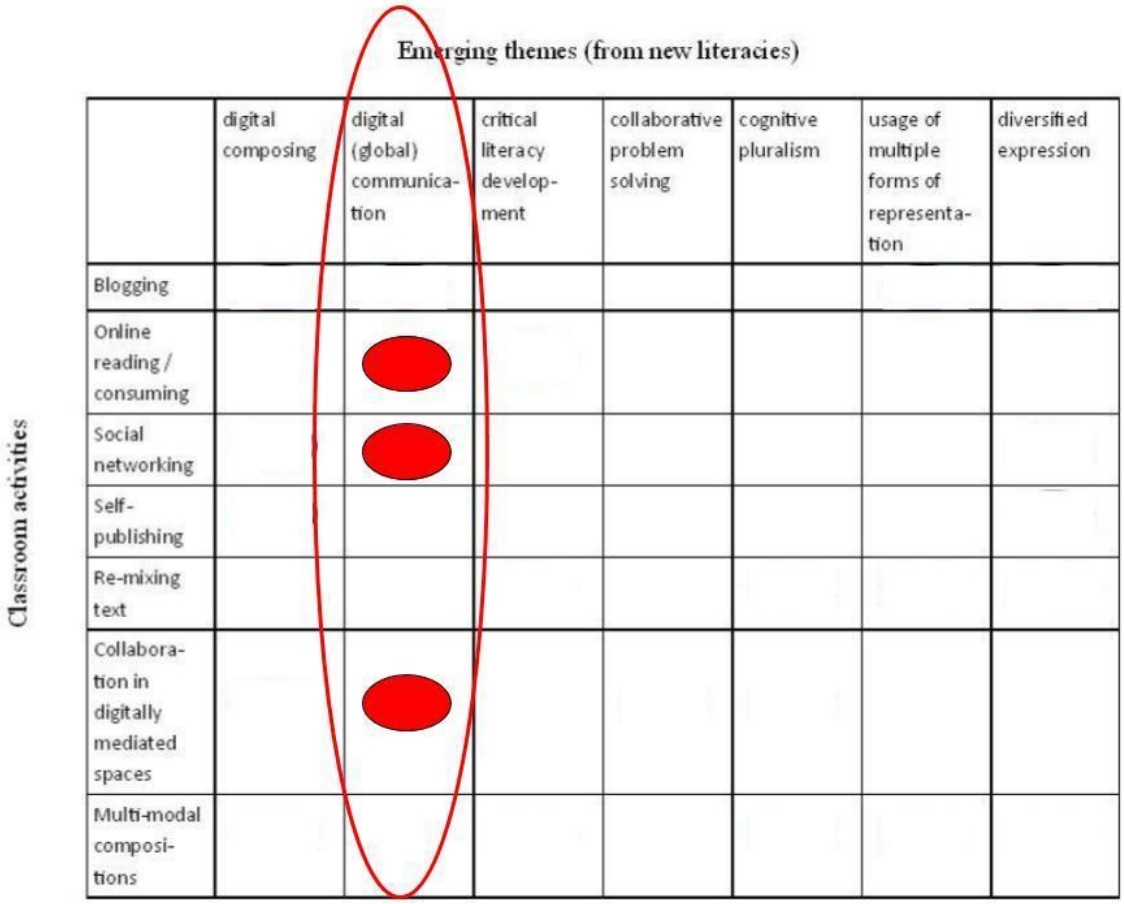

Figure 35. Participants teaching practice aligned with digital (global) communication theme.

Nearpod and Silent Discussions. Amanda and Leslie enacted their teaching practice using the digital tools for the purpose of facilitating discussions around the study of literature. While Leslie used Nearpod more as an accommodation for better viewing her PowerPoint slides, Amanda used Nearpod to solicit student response to open-ended questions. Currently, studies on classroom uses of Nearpod have centered on its potential to flip classrooms and provide guided asynchronous lessons (Delacruz, 2014; Mattei & Ennis, 2014). Amanda, however, used Nearpod synchronously with her students to provide digital avenues for the interactions.

Silent discussions, such as the popular non-digital Chalk Talk method (Stohl, 2010), have the potential to create meditative learning environments that promote reflection (Kaufman, 2008). The findings of this study contribute to a small body of literature that recorded digitally mediated discussions occurring synchronously during class. Roberts (2013) used Google Docs rather than TodaysMeet or Nearpod to facilitate digital chalk talks. Roberts (2013) found that students were at first hesitant to participate in the discussion but contributed when given more time, which aligns with the finding of this study. The use of TodaysMeet as a during reading and post-reading annotation tool mimicked in some ways the blended online discussions studied by Day and Kroon (2010). Like the interns in this study, Day and Kroon's participant teachers hoped online discussion would increase comprehension as students made sense of the books. Other than the few studies discussed, studies of silent discussions are unlike this study in that they examine online discussion as a part of fully online or hybrid courses (Coffey, 2012; Enriquez, 2011; van Der Pol, Admiraal, & Simons, 2006; van Es, 2010; Vogler et al., 2013) not the use of digital tools to facilitate discussion during face-to-face classes.

Essential Themes Across the Cases

The following themes answer the third research question (*How and why (if at all) do interns ply the new literacies made possible by digital technologies when they enact teaching practices in the classroom?*) (Table 10). These themes reflect the interns' teaching dispositions, goals for their teaching practice, and perceptions of their teaching practice.

Table 10

Summary of Interns Results to Research Question 3 (How and Why (if at all) Do Interns Ply the New Literacies Made Possible by Digital Technologies When They Enact Teaching Practices in the Classroom?)

	Themes
Why do interns (if at all) ply the new literacies made possible by digital technologies when they enact teaching practices in the classroom?	To expand student notions of literacy
	To meet the societal imperative for student competencies in digital literacies
How do interns (if at all) ply the new literacies made possible by digital technologies when they enact teaching practices in the classroom?	By using discussion to facilitate student learning
	By advancing teaching practice into new territories of technology integration

To Expand Student Notions of Literacy

Definitions of literacy. The interns were prompted during preliminary interviews to define the word literacy. Interns also expounded on their definitions of literacy during subsequent interviews and lesson debriefs. Amanda initially described literacy as "understanding different forms of media and text" (pre-study interview, January 16, 2018). She continued to describe a broader view of literacy, one including non-traditional forms. She described an instance in her teaching when she was able to describe her view of literacy to her students:

> [Literacy is] having literacy in a specific subject or even in sports, being able to be literate in reading a [sports] play. I said to one of the football players, "So, you're literate when you play football." And they were like, "What are you talking about?" And I'm like, "Because you can read plays, right?" And they were like, "Yeah." And I was like, "Can someone raise their hand that doesn't know anything about football?" And some girl raised her hand [and said], "I know nothing. I hate sports. I think it's stupid." And I was like, "Okay, you're (the girl) illiterate when it comes to football. But you're (the football player) literate when it comes to football because you can understand plays. But

> if I handed her a playbook, she might be able to figure out some of it. But she's not going to understand what the block means, what a slant is, what an L-rod is." And he was like. "Ooohhh." (pre-study interview, January 16, 2018)

This story illuminated not only Amanda's personal views on literacy, but how she infused an expanded notion of literacy into her teaching practice.

Barb provided her definition of literacy, which focused on the notion of "messaging." During her first interview, Barb stated, "Today, I think to me what literacy means is the ability to receive and understand and comprehend messaging. And then put out messaging. I use the term messaging, because I don't want to say that it is specific to texts. I don't want to say that it is specific to speaking, listening. It's all of those things" (pre-study interview, February 14, 2018). Here, Barb is expanding the notion of literacy through the expansion of the notion of text. The term "messaging" better encompassing all the current and expanding forms of text. Leslie's personal definition of literacy connected student literacy practices with technology.

Literacy and technology. All three interns described an important connection between literacy and technology, which is part of the foundation of new literacies. Amanda found that many young people's literacy practices "are rooted in technology. Even to the simplest form of, how most people think of literacy which is reading and writing, most of the reading and writing they do on an everyday basis is done through technology" (pre-study interview, January 16, 2018). However, Amanda described her concern for her students' understanding the long-term impact of digital literacy practices:

> I guess I'm still amazed when I tell students, "Okay so you put that online, that's there forever." They're like, "No, I deleted it." No, it's still out there. And it's hard for me to explain that concept. It's out in the cloud. It's there. It's out in the universe. I think that's

> still where their literacy lacks is this idea that they still don't really know how big this technology aspect is. (pre-study interview, January 16, 2018)

Leslie also described an undeniable connection between literacy and technology. For Leslie, her students' use of social media were examples of writing practice:

> The kids don't realize it: when they tweet, they're writing. When they are Snapchatting, they're writing. And often it's like, you're writing comedy or satire and it doesn't register they're actually doing that. But comedy is really hard to actually write as a genre, but you're sending a super funny Snapchat to your friends. They write and read a lot more than they think they do, and they don't understand that to be writing and reading. But I'm like, if you wrote a Tweet, you wrote today. (pre-study interview, February 7, 2018)

For Leslie, she wanted her students to realize that social media practices were in fact demonstrations of their literacy.

The interns recognized that technology, particularly the Internet, was ubiquitous, resulting in an inevitable impact on literacy. Barb believed that her seventh-grade students had no choice but to be drawn to digital technologies and the internet, because it has been a prominent part of their life since birth. Barb explained, "They're already on the Internet. Their parents have been taking pictures of them and posting them on the Internet since they were literally pre-out of the womb. They are the Internet. The Internet is made up of these kids. And they didn't have a choice" (pre-study interview, February 14, 2018). Both Amanda and Barb recognized a distinct affinity their students had for technology that perhaps was not as common even for them. Barb described how her dad was always up on the latest technology. He was considered a "tech guy:"

> Fast forward that to 2018, I think everyone is a tech guy in a way. Not necessarily

> knowing how to code or build computers. But I think the way that we function with technology and the way that it's so central to the way that we live. Everyone's literate in it, and it's kind of building what we're talking about, building that literacy that we all have now. And expanding it and taking that to match, bringing our curriculum to that. Using that. (pre-study interview, February 14, 2018).

Amanda shared a similar viewpoint, believing it to be important to embrace technology in the classroom rather than try and resist it:

> I feel like that's a way to engage kids is to be interested in what they're interested in. And they're interested in their technology. They're interested in their phones and their games...their literacies are in these different forms of technology. And I've always been the type of person who is like, 'why fight something when you could just work with it?' Pick your battles. (pre-study interview, January 16, 2018)

For Amanda, her students were already interested in the technology and to resist it was to resist her students' natural interests.

To Meet the Societal Imperative for Student Competencies in Digital Literacies

Amanda, Leslie, and Barb shared a common commitment to teach with technology. While their knowledges about digital technologies and uses in the classroom were varied, they agreed fundamentally that technology use in the classroom benefitted literacy learners. Amanda frequently noted that her own knowledge of technology was limited, stating, "I'll have this great idea, but I don't know how to authentically use [technology] or I feel like this could be used in some sort of technology setting, but I don't know how to get there" (pre-study interview, January 16, 2018). Despite this, she believed that students needed to use technology in class to learn literacy essentials:

> It's not something where I'm like, technology is bad, and kids need to be zoned in. But it's more like a situation of, I want them to be able to use it and my ultimate goal is for these kids to be decent human beings... Trying to get them to think more critically about the purpose of technology and how lucky they really are to have all of this technology. (pre-study interview, January 16, 2018)

Amanda expanded on this notion of students being "lucky" to have technology. For her, an appreciation of technology is essentially linked to having digital literacy. Amanda found her students had a "lack of appreciation for the different technologies that we do have. People complain about research papers, and I don't think they realize…at one point someone had to go to the library and check out 10 books" (pre-study interview, January 16, 2018). She continued to say, "It's like they can't make the next step to realize… you're in eleventh grade. You work a part time job. Why do you think you deserve the iPhone 10 the second it comes out? There's that disconnect." Overall, Amanda was driven to use technology in her teaching, because she knew that it would improve students' digital literacy learning:

> I want to just be able to work with them on the technology instead of fighting against them on it, because to me, I think there are a lot of cool ways to change their learning and to engage them more through this technology. I just need to figure it out myself. So that's what's been driving me. I know that they'll enjoy it. I know that it'll be engaging for them, and I know that it'll teach them a little bit more about being responsible with their technology and using it in a way that can really help you. (post-lesson debrief, February 6, 2018).

Leslie and Barb did not express lacking confidence in their knowledge of digital technologies. Leslie imagined that it would be challenging if she were to work in a district that did not have a one to one computing program like Hamlin High School:

> I think because of the opportunities that I've had to be able to plan with one to one Chromebooks, it would be a really hard thing for me to do next year if I'm placed somewhere where I don't' have technology. Or you have the computer lab, and it's like a place you visit once or twice a week or once or twice a month. Or you have to check it out and share it, and the machines don't work or whatever it might be. (pre-study interview, February 7, 2018)

She emphasized, like Amanda, that students do not always necessarily have the appropriate digital literacy skills. It, in fact, surprised Leslie when she realized her students didn't have certain digital literacies:

> I was not expecting to encounter with technology the amount of kids that don't know how to do things on the Internet. And they don't have the problem-solving skills to think and figure out where the home is and how to get into an account if you get locked out or things that I would assume they were completely able to do or adept in. And they just aren't. They just need help, or they're not able to problem solve for themselves. They need attention. (pre-study interview, February 7, 2018)

Leslie realized after entering her internship that not all her students had the same digital literacies.

Barb felt strongly that her students lacked digital literacy skills responding on social media. During a post-lesson debrief, Barb discussed her dissatisfaction with her students' argumentative skills on social media:

> I think that using technology with teaching is literally crucial, and I almost just want to quit teaching every other part of the content, because we don't know how to respond to each other on any social media at this point. At all. And it's super problematic. You can't just call someone dumb using a meme for something that they said online, and then expect that to be like, "You won the argument." That's weird. That's a weird cause and effect. (pre-study interview, February 14, 2018)

Barb also noted that she realized it was important to not make assumptions about students' digital literacy practices. Though she had wanted to use certain social media platforms in her teaching, she quickly realized students did not use or value the same platforms that she did:

> I need to not assume things. We assume that students are going to be all about creating a Facebook profile. None of my students have Facebook. None of them have Facebook [sic]. They literally think it's lame. None of them have Twitter. They think it's cool and retro that I have Twitter. And they're like, "We use Snapchat." But what for? And they're like, "Streaks." And I'm like, "What? What are these words you're coming at me with? What do you use?" I think that's the big thing, is actually getting to know students where they're at. (pre-study interview, February 14, 2018)

At Fillmore High School, Amanda's students not only had access to devices during class, but many brought their own each day, including personal laptops and smartphones. Amanda assigned homework that required internet access to tools such as TodaysMeet, Google Docs, Google Classroom, and Turnitin.com. For Amanda, access to internet-enabled devices was a given. As a result, technology and access to the Internet served as an equalizer, where relatively all students had the opportunity to access the same information. Amanda described her thoughts on student access to technology:

> They all have access to these computers. And I feel like by putting them on these computers, it helps them to have the tools that they need to get at the same level. So if they don't know something, or if they don't know a word or a concept, instead of having to necessarily ask me or ask a friend or maybe get laughed or be like, "I don't know what that is," they can quickly Google it. And I feel like that's something most kids know how to do. (post-lesson debrief, February 6, 2018)

At Hamlin High School, however, Leslie encountered a very different circumstance of access for her teaching context. Leslie found that access to internet-enabled devices at home was unreliable, and she could not assume that students would have access to such devices after they left her classroom: "I know what they have access to in our room," she explained during her first interview. "And it's very closely tied to where we don't really assign homework. So if we're able to assume that access is in the room, we can depend on that to see through the entire project or assignment or whatever it might be, not go home and rely on whatever you have. Literally in Hamlin it ranges from everyone has Wi-Fi to, 'I don't have a computer at home'" (pre-study interview, February 7, 2018). The varying degrees of access to internet-enabled digital technologies impacted how Amanda and Leslie considered the digital literacies of their students.

By Using Discussion to Facilitate Student Learning

All three intern participants enacted a teaching practice that facilitated discussion and collaboration in the classroom using digitally mediated tools, which most aligned with the emerging theories of new literacies (see Figure 1 in Chapter 1). Furthermore, they spoke across the study about their desire to foster a dialogic classroom, and all three used digital technologies in this endeavor to enhance and transform discussion. However, each intern held their own unique reason for wanting a dialogic classroom. Amanda was explicit in describing her desire to

preserve the human connection in her classroom. “I think that it is more real when you are in person,” she stated during her first interview. “I think there is something more real about being with somebody and being able to feed off of their body language and understand that aspect of it and to be able to interact with somebody without needing all of these outside sources. To be able to just have a conversation with somebody else without being distracted by all of these other things that consume us” (pre-study interview, January 16, 2018). Her fear of students losing human connections by “being distracted by all these other things” was rooted in their constant use of technology. Despite this fear, Amanda consistently used digital technologies to facilitate her classroom discussions (e.g., TodaysMeet and Nearpod). Overall, for Amanda, collaboration was a key facet of her instruction: “I really believe that collaboration is the key to success. I really feel like kids need to be able to work together, to learn from each other. I feel like we all learn from each other, and I'm still learning from them. They're learning from me. It's not like I'm the holder of knowledge. We're all collaborating. We're all going to work together to figure something out” (post-study interview, April 19, 2018).

Though Leslie and Barb were less explicit when describing their goal of fostering a dialogic classroom, the subject of discussion and collaboration was discussed in various ways across the study. Leslie suggested her personal desire to create a classroom environment where students can speak freely by describing her perception of other classrooms that do not allow students to speak freely. During a post-lesson debrief, Leslie stated, “The rule in every other class that's almost unspoken is be quiet. That's why I struggle so much with the dialogic thing cause, every other hour of the day, when [students are] not in [my room], they're like ‘Shh, be quiet. Follow this thing. Listen to my voice.’ And then here I'm like, ‘Okay go!’” (post-lesson debrief, February 28, 2018). Her consistent enactment of discussion-based teaching practice

during her unit suggested that she wanted to, in her classroom, disrupt the normative experience elsewhere in the school of being told to be quiet. However, she did not always use technology to enact her discussion-based teaching practice.

Barb described a similar experience in her final interview. After completing her unit, Barb took a step back from teaching, and her mentor teacher resumed teaching each class period. When asked about her experience watching her students be taught by her mentor teacher and no longer being the lead teacher, Barb stated, “I think the hardest part for me is… now that I'm not in control in setting my expectations, it's really hard when students are doing a task that there's no reason to be silent, but they are forced to be silent” (post-lesson interview, April 12, 2018).

In fact, the topic of noise in the classroom was discussed by both Amanda and Barb, as it represented a difference between their teaching practice and their mentor teachers’ practice. When asked about why she is more comfortable with talking in the classroom than her mentor teacher, Amanda stated: “I hate saying this, but I just feel like it's a generational thing. They were part of this era of, if kids are silent, and kids are focused, then they’re working, then they're learning” (mid-study interview, March 6, 2018). Barb made a similar generalization during a post-lesson debrief, stating, “I think that there's also this thing that teachers think about: what thinking is and what discussions are. And I think when they think of thinking, and what students look like or sound like when they're thinking, and they think of quiet” (post-lesson debrief, March 7, 2018). Amanda found that teachers closer to her age challenge the notion that silence equals thinking, working, and learning:

> I think that we're part of this generation that questions silence. Are they learning? Are they really learning when they are sitting there silently? Or are they taking a nap? I feel like we question that a little bit more, and I feel like we question the noise a little bit

> more. And I think that it's something that also some teachers are so used to like, this is how it is: kids are learning when they're focused and they're working and they're silent. And I think that breaking that norm causes uncomfortable feelings. Breaking a norm of anything causes uncomfortable-ness and uneasiness. (mid-study interview, March 6, 2018)

Barb described her own personal experience with noise and talking in her classroom, rather than generalizing about teachers her age, stating, “I'm also really okay with some volume. I feel like letting them talk to each other is what the point is. I'll intentionally let them go and talk to each other. But as soon as it gets into just like, 50 people talking like this, then I have to simmer the room” (post-lesson debrief, March 7, 2018).

Barb’s disposition for discussion and collaboration was further described during post-lesson debriefs. After a lesson featuring a discussion, Barb reflected on the importance of accepting the responses and connections students were expressing during a discussion. “When I'm just like going with it, I am looking for their wacko answers. I'm looking for them to just say whatever” (post-lesson debrief, March 7, 2018). The goal was for students to make connections to their own lives, not to produce a certain response. She continued on to explain how any connections the students make while reading are valuable and can help them, such as when they are taking an assessment:

> I think I want them to just not be afraid to share those connections if they feel like they have a connection that is right field, left field or whatever. I want them to be able to make that connections...I personally don't care as long as they have some sort [of connection], even if they're taking some test about it, and they remember because they talked about salad, it doesn't matter. But I just want them to get them thinking out of the box vs. the

only example something like *Percy Jackson and the Lightning Thief*. (post-lesson debrief, March 7, 2018)

While connections to other popular texts may be seen as desirable to others, for Barb, accepting singular answers and accepting only answers of a certain quality or type was counterproductive and would perhaps result in students not freely expressing their ideas and making lasting connections.

Amanda also wanted her students to make personal connections. Where Barb's seventh grade students were encouraged to speak freely and make connections to the text that mattered to them, Amanda struggled to get her twelfth-grade students to provide what she described as "more authentic" (post-lesson debrief, January 31, 2018) responses and connections from her students. After a particularly challenging discussion for Amanda, she reflected on why her students were not meeting her expectations:

> I think it started off very performative...They're giving me the answers they think that I want. And they are giving me answers that are, when I was like, "Okay what do we think about this bird?" Somebody raised their hand, and they're like, "It symbolizes death." And it was like, "Okay…" (post-lesson debrief, March 1, 2018)

Though this answer was valid, Amanda hoped her students would make more meaningful and personal connections, rather than trying to give "some performative answer." (post-lesson debrief, March 1, 2018). Amanda wondered if perhaps the rigorous academic culture of Fillmore High School was impacting her discussions. "It was just them being the studious students that they are… I just felt like the discussion was really dry and performative and it was pulling teeth and that wasn't really the goal" (post-lesson debrief, March 1, 2018). Later during the lesson

debrief, she pondered: “How do I get my kids not to care about school? But in a productive way. I don't want you to completely not care, but I want you to not care if you're right or wrong.”

Challenges of discussions. Despite their goal to foster a dialogic classroom, all three interns confronted challenges to enacting discussions, whether they were digitally mediated or not. As described previously, Leslie reflected frequently on her goal to not direct the conversations during class but felt compelled to do so to make sure the students completed the lesson with a certain understanding. She described the kinds of discussions she would like to have in her classroom and the role she would enact to achieve it:

> I don't want to be a director. I don't want to debrief conversations. I only do, because I think it's necessary to end up a lesson. I don't do it because I'm really married to whole class discussions where I'm the one who is like, I repeat what the students say and try and like, authentically, translate what they're saying. I hate doing that… I want to be like a tool. I want to be the lens that they look through… because English is actually applicable to their lives. I want to be like a filter. (post-lesson debrief, February 14, 2018)

Barb and Amanda also both experienced the challenge of their students talking to them, the teacher, rather than talking and connecting with each other. Barb expressed that she didn’t want to be the center of the discussion:

> [The discussion] always comes through me. I want them to do a little bit more talking to each other. And I'm actually trying to fix that, but it's really throwing me for a loop. A lot of our discussions like that, where I'm like, “Okay can we get some of your ideas?” It's through me. It's like they're talking to me. And I have to be like, “Any other ideas?’” Every single time it comes through me. I'm like the pivot for the discussion. And I don't necessarily want to be. (post-lesson debrief, March 7, 2018)

Amanda discussed a similar challenge. She described not only struggling to her students to think "on a higher level" but she wanted her students to connect to each other and build on each other's ideas:

> Discussion in general have been challenging, because they give any answer and then they want to be done. They're like, "Okay, I gave my answer." And I try to pry more out of them or get them to think on a higher level or connect with somebody else's. The connections are there, and it's obvious for me to see. But I still find it challenging for me to be like, "You just said something that so relates to what that person said. Connect!" And so that's still challenging for me. (post-lesson debrief, March 6, 2018)

Amanda later during her final interview reflected that perhaps the challenges of her discussion could have been improved through more careful planning:

> When it comes to planning, I was really thinking about the purpose of the type of discussion I was going have. Because I was always forgetting that. And I was like, "We're just going to have a discussion. It's going to be cool." And I wasn't thinking about how to operate that discussion and how to set up that discussion. (post-study interview, April 19, 2018)

None of the interns, however, considered how digital technologies could offer new ways to solve the problem of students' connections during discussions. Though these challenges persisted for the interns throughout their units, the goal of enacting dialogic teaching remained.

By Advancing Teaching Practice into New Territories of Technology Integration

Trying new digital technologies. As English Language Arts teachers, each intern considered how the use of technology in the classroom could improve literacy instruction. Though Amanda consistently tried the apps TodaysMeet and Nearpod across her unit, she stated

in her first interview that it was challenging to stay up to date on the latest technologies and apps. She remarked, “How do I constantly know what's going on or what's the new app to use or what's the new technology to use or be implementing into the classroom? And I don't know if there is a good answer to that. Cause I know it's constantly changing” (pre-study interview, January 16, 2018). Though she felt the pressure to stay up to date on the latest apps, Amanda noted later in a post-lesson debrief that even though learning new tech is uncomfortable, it may be easier for teachers closer to her age to do: “The tech part of it, trying to learn the tech program you're not familiar… It takes a sense of uncomfortable feeling...I think younger teachers are a little bit better at doing that, whereas older teachers are like, ‘Well this has worked in the past so I'm just going to do that because that makes me uncomfortable to not know’” (post-lesson debrief, January 23, 2018). Similarly, Leslie stated in her final interview that teachers needed to anticipate technology problems and reflect on those experiences, stating, “Know that whatever you have in mind of how it's going to go, it's probably not going to go that way but that's okay. If you don't reflect on it, you're not really doing yourself a service. You're doing yourself a disservice. It's easy to use technology as a way to not get stuck into doing the same thing or thinking the same thing” (post-study interview, April 12, 2018). This was perhaps one way Leslie confronted the “uncomfortable feeling” of using new technology that Amanda described. In fact, Leslie described an experience early in her internship where her students were not familiar with a technological task that Leslie assumed her students would know how to do:

> The last two [vocabulary] reviews we did was… having them make a photo definition of the word. And then they would have to assemble a PowerPoint slide for each word with the definition, and the etymology, and the photo, and how the photo relates. The first time we did that we had some struggles with tech. They had a really hard time figuring out

how to get photos from their phone to the computer. Which was interesting to me because that was something we didn't anticipate having to be a thing and it really was (post-lesson debrief, March 14, 2018)

While Barb experienced challenges with using particular digital tools, she asserted that current classrooms are far from innovative in their technology use, at least in the kinds of ways that would fully utilize students' digital literacy skills and available technology:

I think [transforming teaching] is a giant undertaking. I think right now with what everyone else expects a teacher to do, like administration, legislators, they don't see the amount of work that this is going to take to do this. It's a giant undertaking that will, I think, if you are actually doing it, it will probably get you fired. This type of technology literacy, you're almost born with it. If you are [born] post 2000, it's almost so much a part of what you come with as a packaged human being. If we don't meet it, we are doing a disservice to our kids. (pre-study interview, February 14, 2018)

Barb believed that to fully allow for, value, and utilize digital literacies and technologies, education broadly must shift its focus and change systemically. She continued:

And I think about the way we think about education. We as in, public education as a whole, we're not thinking there. We're still thinking: content knowledge. We're still thinking: I'm not using the right phrases right now. But I almost think that if you're doing this right, if you are doing this type of teaching to their technology literacy, if you're doing it justice, you're probably getting things that are outside of, so much so outside of, the norm that it's uncomfortable for the way schools are right now. To the point where you're probably going to get fired. (pre-study interview, February 14, 2018)

Though neither Amanda nor Leslie suggested the type of systemic shift required for

change that Barb did, Amanda noted that teachers today are not using technology to their full potential:

> A lot of people will just be like, "Well we have iPads in my classroom, so we are using technology." And it's like, okay so what do you do with those iPads? And it's like, well you know, they write on their Google Doc. And I'm like, "Yeah, that's technology, but that's not really like, getting at anything better than writing it on paper. What's the difference of writing it on paper?" They are at is like a baby level. "Yeah, we got the iPads, and we got Google." (pre-study interview, January 16, 2018).

None of the interns went so far to say that they had figured out or enacted these instances of transformational teaching practice using digital technologies. However, each recognized the need, at the very least, to try.

Smartphones: The pressure to hold attention. Smartphones, the personal technology device that most students in each intern's placement possessed, were an enigma for the interns. Considering the frequent use of smart phones by students in their personal lives, each intern had an interest in using the technology in their classroom. However, it was difficult knowing how to use them in appropriately in their teaching practice.

Barb spoke about smartphones the least, perhaps a result of working with seventh graders in a middle school, while Amanda and Leslie worked with upperclassmen in high schools. Interestingly, Barb only mentioned smartphones once, and it was in the context of describing her classroom's "Phonetel" (Figure 36).

Figure 36. Arthur A Middle School "Phonetel" and rules.

Located behind her and her mentor teacher's desk, the Phonetel was rarely used by students during observations, and Barb did not enforce the rules posted beside it. Only one or two students used the Phonetel each period, which was most likely a result of personal choice or a disciplinary requirement that started before Barb's classroom was observed. In short, Barb never required students to use the Phonetel. While describing how she utilized the tools available in the Google such as highlighting to maximize student engagement, she added, "I still have a Phonetel. I'm not sure how I feel about that, either" (pre-study interview, February 14, 2018). Unlike Amanda and Leslie, Barb perhaps did not experience the pressure to compete with smartphones or manage their use during school hours, perhaps because she was in a middle school with more strict smartphone rules enforced school wide.

Amanda discussed smartphone use in her classroom, both sanctioned and unsanctioned use, and her classroom's "Cell Phone Hotel" the most. Amanda utilized and enforced the Cell Phone Hotel to varying degrees across her unit. Towards the end of her internship in March and April, Amanda stopped enforcing the Cell Phone Hotel resulting in only a few students placing their phone in the Hotel. The Cell Phone Hotel served a dual purpose of a charging station, which perhaps accounted for the few students continuing to place their phones there during class. Fillmore High School administration, according to Amanda, did not require teachers to use the Hotels. Amanda noted that "about 50 percent" of teachers used them, which "makes it challenging for those that do use it" (pre-study interview, January 16, 2018). Personally, Amanda did not like the Cell Phone Hotel system:

> I don't like it. I don't like that I feel that I'm taking something away from them when they didn't do anything wrong. I feel like it's a punishment. I feel like it's almost like the opposite of our judiciary system, where we assume that you're guilty. Instead of assuming that you are innocent. And we assume that you are going to act like a child rather than act like an adult. And that's my big thing is because I've told them multiple times, just said it this morning to them: "You're an adult or you're becoming an adult, right? And there is a way that I expect you to act. Which is very different than I treated my 5-year-old last year. If you're going to act like a 5-year-old then yes, I am going to treat you like a 5-year-old. But I don't want to do that. I want to treat you like you're 16, 17, 18 years old. And about to enter this phase of your life where you have a lot more freedom." (pre-study interview, January 16, 2018)

During her final interview at the end of her unit, Amanda still did not like the punitive message that the Cell Phone Hotel gave.

After tapering off her enforcing of the Cell Phone Hotel policy, Amanda found that she was still bothered by certain students' unsanctioned use of their smartphone:

> I need to work on still finding this thing with cell phones, which I know is kind of weird. Now that I've let them have free range, most of them are really good about it. But there's a couple that grind my gears, because they never get off of them. I'm like, "I'll throw this paper clip at you. Get off your phone." And so learning to deal with that. (post-study interview, April 19, 2018)

Not only did Amanda not want to punitively take away students' smartphones, she lamented the lost opportunity to use the phone more frequently during instruction:

> This is something that I struggle with to the core of me, of taking these phones away. Because I really don't feel like it serves any purpose, to completely take them away. Because what are they learning from that? What are you learning from it? Nothing. You're not learning the skills of how to have your phone there and still be connected to somebody. To me, that's important. And you're not learning those skills, you're just learning how to put it in a box far away that you can't touch. And then I also just feel like they lose out on so many opportunities that we do with the technologies" (post-study interview April 19, 2018).

Despite not enforcing the Cell Phone Hotel policy and having students use their phones to engage with digital tools such as Nearpod and TodaysMeet, Amanda continuously struggled with unsanctioned use of smartphones which resulted in a lack of student attention during class.

Leslie's classroom did not have a cell phone hotel. Like Amanda, though, Leslie found herself competing for the attention of her students. "I worry about their attention spans," she stated during her first interview. "I feel so old-fashioned saying that. It's like (snaps her fingers),

I'm more interesting than *FIFA* [the mobile game] on your phone. I have to really stretch myself" (post-study interview, April 12, 2018). She managed the students' lack of attention through "constant redirection. And I try to be as weird as possible, basically. So that they're like, 'What's going on? Why is she yelling?'" (pre-study interview, February 7, 2018). Similarly, Amanda vocalized more frustration with her students' use of cell phones and competing for their attention:

> They're always on their phones, and they never pay attention. And they don't hear anything I say. And that drives me crazy. If a kid comes up to me and asks me what they missed, and I know for sure they weren't paying attention, I literally go tell them to sit down, because I don't deal with that. So if I have to tell 28 kids that, I am going to struggle, and I'm going to be frustrated (pre-study interview, January 16, 2018)

Like Leslie, Amanda felt pressure to be even more engaging. "It's on me to be even more engaging. I feel like I need to step up my game" (pre-study interview, January 16, 2018).

None of the interns felt particularly prepared to handle smartphones in their classroom. While Amanda used them the most during classroom activities, she also was the only one to enforce a cell phone use policy, the Cell Phone Hotel. For Amanda, the issue of smart phone use was more than just a Cell Phone Hotel or appropriate use during class. Rather, in her initial interview, she touched on the undeniable pull of the smartphone:

> I feel like now, because we have all of this technology, it's hard to just shut it down and be in the moment and just be there and fully present and not thinking about, why did my screen just light up? Is it an email from work? Is it this? And I think that the phone is very helpful and you are connecting with other people, but I wonder how you are missing the connection with the person that's sitting right next to you. (pre-study interview,

January 16, 2018)

Conclusions

Overall, the participants of this study shared expanded notions of literacy, believing that teaching with technology and teaching digital literacies was an imperative part of ELA teaching practice. The participants of this study were young, but they expressed differing levels of confidence in their technological knowledge. Amanda and Leslie stated that they were not confident in their technological knowledge, and therefore didn't always use technology to the extent they wanted. These findings are confirmed by previous studies that found that young teachers lacked self-efficacy in their computer skills but held positive beliefs about using technology in their teaching (Ajayi, 2010; Cullen & Greene, 2011; Li et al., 2015). On the other hand, Barb did not feel a lack of confidence in her technological knowledge.

The findings of this study correspond to the findings of studies that concluded that despite PSTs positive attitudes toward technology, they struggled to implement technology into their practice (Alexander & Kjellstrom, 2014; Meagher et al., 2011; Ortega, 2013). The intern participants in this study described varying levels of satisfaction and dissatisfaction with their use of technology in their teaching practice. Amanda and Leslie relied solely on two tools, Nearpod and TodaysMeet, wanting their students to make deep connections to the text and speak to each other rather than through the teacher. However, they both expressed being unsure of how to accomplish those goals. While Amanda continued to try using the technological tools, Leslie stopped using digital tools mid-way through the semester, resorting to more traditional approaches to discussion. Leslie was also skeptical of using technology in her classroom, worrying that students were using the Chromebooks too much in a school day. Hsu (2013) also

found that some young PSTs were skeptical of technology in education. Barb relied on the Google Suite for Education tools, using mostly Google Docs to assist in the teaching of writing.

One possible explanation for these findings is that PSTs often have limited technological knowledge. Though the PSTs are digital natives themselves, their technological knowledge is limited to the tools they use every day and does not necessarily include knowledge of tools appropriate for educational purposes (Dinçer, 2018; Gonzalez & González-Ruiz, 2017; Lemon & Garvis, 2016). A lack of technological knowledge could also be a result of a lack of training during the PSTs TEP. In fact, Amanda specifically stated that she felt ill-prepared to use technology by her TEP.

Despite these challenges, the potential for Amanda, Leslie, and Barb to continue to enact digital technologies and ply new literacies in their teaching practice in the future is high. Studies examining PSTs planned future behavior to integrate technology found that interns with positive beliefs about technology in education were most likely to teach with technology in the future (Fluck & Dowden, 2013; Teo & Tan, 2012). As a result, Amanda, Leslie, Barb will perhaps continue to explore new possibilities of teaching with digital technologies during their first year of teaching.

Implications

The experiences of the three pre-service teacher participants of this study provide insights into the ways pre-service teachers enact teaching practice with digital technologies during their field placements. Findings suggest that despite the interns' positive beliefs and values about technology integration and digital literacy, they plied new literacies in disparate ways and to varying extents across their internship. This study has important implications, therefore, for the ways TEPs prepare PSTs to teach new literacies with digital technologies.

Currently, TEPs provide training to PSTs on technology integration using stand-alone courses, technology infused education courses, or a model utilizing the principles of both. Groth et al. (2007) found that integrating technology into education courses across an entire TEP had the potential to fully immerse the PST in technology instruction. Toledo (2005) recommended that TEP embed technology in all educational courses to provide full immersion. Preparing teachers to teach with technology should occur across all levels of a TEP, from early courses through the internship (Ottenbreit-Leftwich, Glazewski, & Newby, 2010). The interns in this study were part of a TEP utilizing a technology integration approach. Instructors at the university are encouraged to teach with technology. Research has found that it is difficult to rely on instructors to systematically use technology effectively in an integrated model (Haning, 2016; Mitchell & Laski, 2013). Participants were exposed to the ideas of new literacies, digital literacies, and critical literacies as a part of their English Education courses. None of the participants, however, took a stand-alone technology course as part of their program.

Though participants generally demonstrated a positive belief in using technology, they lacked a deep technological and pedagogical knowledge. According to Mishra and Koehler (2006), effective technology integration relies on overlapping pedagogical and content knowledge working in tandem to design impactful learning experiences for students. Interestingly, Mishra and Koehler's TPACK framework has been commonly reported as the curricular foundation for stand-alone technology courses (Buss, Wetzel, Foulger, & Lindsey, 2015; Hsu, 2012; Semiz & Ince, 2012; Wilder & Jacobsen, 2010). The findings of this study suggest that for the participants of this study, an integrated technology model without a stand-alone course resulted in varying levels of technology knowledge and abilities to use technology in pedagogically purposeful ways.

Therefore, TEPs should provide PSTs with stand-alone technology courses focused on building technological knowledge. The participants of this study relied on a few familiar technological tools. An expanded repertoire of technological tools may result in more meaningful technology integration. Without a stand-alone technology course, TEPs risk not providing their PSTs with a foundation of technological knowledge, essential for effective technology integration (Koehler & Mishra, 2009). Next, TEPs must continue to integrate technology throughout the entirety of the program, including during content classes. Secondary PSTs often take content courses outside of the TEP. As a result, content classes must also integrate technology in instruction to model the combination of content, technology, and pedagogical knowledge in ways that education courses cannot provide. The implication of this study is that TEPs must integrate technology throughout the TEP and content courses and provide a stand-alone technology course to expand the essential technological, pedagogical, and content knowledge of PSTs.

Future Research

Limited research exists on both the teaching of new literacies to PSTs as part of their TEP and how PSTs enact new literacies in their teaching practice during field experiences. The findings of this study support the need for further study of TEPs development of PSTs beliefs and knowledges to integrate technology. One limitation of qualitative research is findings are not generalizable to the greater population. However, qualitative research does provide rich descriptions of individual experiences. As a result, research will be necessary to explore how interns enact teaching practice with digital technologies in contexts different than those explored in this study. For example, explorations similar to this study should be done in urban contexts, and with PSTs in other content areas.

Studies with longer periods of time in the field are recommended. Though all efforts were made to maximize time in the field, this study was impacted by inclement weather that lowered the number of observations. Also, the interns were in the field for an entire school year. Future studies should enter the field at the beginning of the school year. More time in the field could provide more opportunities to record PSTs' beliefs and values about teaching and technology as well as to observe teaching practice.

It is also recommended that the study of PSTs integration of technology during their field placements begin at the start of their induction into a TEP. Longitudinal studies of PSTs beliefs and values about technology and literacy and their enacting of teaching practice across the entirety of their TEP would allow for more robust understanding of the factors and impact of the TEP on PST teaching practice in the field. Such longitudinal studies of PSTs can also provide insights into the impact varying TEP technology integration models, such as stand-alone course or technology integrated courses and programs.

Finally, this study considered the experiences of PSTs with positive attitudes about technology integration in technology-rich placements. It is suggested that PSTs with negative or neutral attitudes about technology integration be examined. Furthermore, school settings with low technology availability or settings with new 1:1 computing programs should be examined.

APPENDIX

Interview Protocols

Pre-Lead Teaching Protocol

1. Describe your experience teaching with technology.
2. Why do you use technology in the classroom?
3. In what ways should / can technology and ELA be used in the classroom?
4. What hesitations / issues / reservations do you have about using technology in the classroom?
5. Is literacy and technology connected? Have you witnessed or had experiences with technology and literacy?
6. What is literacy, to you?
7. What brought you into teaching?
8. What beliefs / principles drive your teaching?

Mid-Lead Teaching Protocol

1. Considering your lead teach so far as a whole, what aspects have successfully gone to plan?
2. Considering again as a whole, what aspects have been troublesome?
3. What do you still want to work on / practice / improve on before your Lead Teaching is done?
4. What is something you feel confident you are good?
5. What is something you feel you are not so good at?
6. Are you pleased with your use of technology in teaching?
7. What is something you did teaching with technology that you liked?
8. What is something you did teaching with technology that didn't go so well?
9. Now that you have been lead teaching for a while, what identity do you think your students associate with you? What identity do you associate with yourself?
10. Mentor only: Difference between interns and mentors – Is it because of era of accountability? Generational differences?

Post-Lead Teaching Protocol

1. Describe your / the intern's lead teaching overall?
2. Intern only: What has changed about your beliefs / impressions about teaching with technology?
3. Intern only: What will you bring to your first year of teaching overall? What is your goal for teaching with technology?
4. What were your triumphs / successes in this experience?
5. What do you know you still need to work on?
6. What advice do you have for teachers who want to teach with technology?
7. How would you describe your teacher identity now? How did it change?
8. What beliefs / principles drive your teaching?
9. For Mentors only: What did you learn from your intern?

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