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Chapter 10
Lessons Learned:
Teaching Latinx Teacher Candidates Through Digital Literacy and Community Service Learning

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ABSTRACT

The authors focus on digital literacy and community service learning (CSL) strategies from research of Latinx undergraduate teacher candidates (TCs) engaged with technology in CSL courses. The qualitative studies have taken place in a tutorial agency and university classrooms in the Rio Grande Valley, Texas, one of the most economically-strapped U.S. regions. The 60 participants were Bussert-Webb's TCs in Summer 2016 and Summer 2017 (n=28) and Lewis's TCs in Fall 2018 and Spring 2019 courses (n=32). Data sources include participant observations, surveys, focus groups, lessons, and reflections. Using social justice and New Literacies frameworks and thematic data analysis, the authors discuss four concepts that have influenced their practices: 1) risk-taking is more important than our digital expertise, 2) digital literacy connects to social justice contexts, 3) TCs engage in authentic technology experiences, and 4) technology-infused CSL is provided. Implications relate to closing a three-tier digital divide among Latinx teachers and youth.

INTRODUCTION

Many believe the digital divide relates only to technology access. Although conceding access barriers, Zinger, Tate, and Warschauer (2017) showed evidence against such a technocentrist perspective (Papert, 1993). Zinger et al. described a tool-focused approach as, "The technological device itself is viewed as the solution to an instructional challenge" (p. 578). Although connected to other digital divides, ac-

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cess represents a primary divide. The secondary divide includes practices (why and how people use technology), while the tertiary divide focuses on academic digital literacy skills, such as online reading comprehension (Henry, 2010, Bussert-Webb & Henry, 2016).

We define digital literacy as "socially situated practices supported by skills, strategies, and stances that enable the representation and understanding of ideas using a range of modalities enabled by digital tools" (O'Brien & Scharber, 2008, pp. 66-67). Technology, which involves applying digital tools, falls under the digital literacy umbrella. We frame instructional technology integration at primary, secondary, and tertiary (university) levels as a literacy issue to increase technology's power (Leu, O'Byrne, Zawilinski, McVerry, & Everett-Cacopardo, 2009).

Yet, how do we bridge these digital divides at the pre-kindergarten through college levels? As per Zinger et al. (2017), first-order or extrinsic barriers include limited access, scant professional development, time constraints, lack of technical support, and inadequate institutional vision for authentic, inquiry-based technology use (e.g., technology for rewards and rote learning versus inspiring wonder). However, second-order barriers (intrinsic) relate to teachers' beliefs, efficacy, risk-taking, and sociocultural knowledge of diverse students. "A resistance to change can undermine innovative technological pedagogy regardless of the number of internet-connected computers in the classroom" (Zinger et al., p. 585). Technological pedagogy combines instructors' technological, pedagogical, and content knowledge with knowledge of student and classroom contexts (TPACK) (Koehler & Mishra, 2009).

Ruggiero and Mong (2015) confirmed these first- and second-order digital barriers in their mixed-methods study of 1048 in-service teachers; however, they found that passionate teachers circumvent extrinsic barriers. See Hennessey, Harrison, and Wamakote (2010) regarding teachers' intrinsic barriers, including the role of teacher preparation programs.

Thus, providing appropriate TC support is paramount in changing second-order barriers once these teachers-in-training become full-time teachers (Ertmer, 1999). Knowing that teachers-in-training represent our U.S. educational future, this chapter focuses on lessons learned in teaching our TCs to use instructional technology and digital resources for higher-order purposes with youth (Churches, 2008). We also discuss requiring TCs to engage in Community Service-Learning (CSL) involving technology with youth in out-of-school settings. Informal learning environments can reveal much about the teaching profession and can help TCs to gain experience in adapting technology implementation to enhance diverse children's strengths, needs, interests, and community funds of knowledge (González, Moll, & Amanti, 2005). CSL is a reciprocal, social justice pedagogy and scholarship in which TCs engage in meaningful service and discuss and write reflections connected to course content (Maynes, Hatt, & Wideman, 2013). Our university defines service-learning as,

A thoughtfully organized service experience that addresses a need in the community in a reciprocal and mutually beneficial relationship and integrates a reflective component that relates the service experience to academic course objectives and the student's learning (service = learning) University of Texas Rio Grande Valley, n.d., para. 3).

Next, our chapter focuses on Latinx, the fastest-growing U.S. population (U.S. Census Bureau, 2015), but also one of the most challenged regarding socio-economic status (SES). For example, about 25% of Latinx live in poverty in the U.S and 20% of U.S.-born Latinx lack a high school education or equivalent (Brown & Patten, 2014; Flores, López, & Radford, 2017). See also Gándara (2010) regarding the Latinx education crisis. Despite these multi-factor, intersecting obstacles, Latinx possesses many strengths,

including bilingualism and biliteracy (García & Kleifgen, 2010), family unity, and wanting the best for their children (González et al., 2005; Nora & Crisp, 2012). We embrace strengths-based perspectives.

Specifically, we discuss what we have learned from our research findings with Latinx pre-service teachers related to digital literacies and CSL. For 21st Century trends in blended learning, TCs need experience and training with sophisticated technology applied in instructional settings (Ruggiero & Mong, 2015; Zinger et al., 2017). Bussert-Webb taught face-to-face courses in 2016 and 2017 at a tutorial agency, where her TC students engaged children with technology.

In 2018 and 2019, Lewis integrated blended learning and modeled instructional technology use for enhancing TC learning in classrooms on our university campus; Lewis's 2019 course and data gathering are on-going. Blended learning is not 100% online, but creates affordances of non-traditional, personalized learner-centered experiences (Greene & Hale, 2017). Examples would be peer collaboration and feedback online versus attending all face-to-face classes; our university calls these instances reduced-seating courses. The New Teacher Project (TNTP) (2014) defined blended learning as, "the strategic integration of in-person and virtual learning to personalize instruction" (p. 2). Greene and Hale found blended learning helps student learning when facilitated and designed by prepared educators who actively engage in designing meaningful, empowering experiences. Additionally, Lewis's course design engaged TCs in CSL in non-school sites, e.g., after-school tutorial agencies, and TC field observations in formal school settings. Since Lewis's courses have taken place in our university classrooms, TCs completed CSL and field observations outside of class time.

Although we present some findings from our studies with TC participants, we focus on lessons learned based on our findings. We believe we can influence more teacher educators by revealing our struggles and epiphanies related to digital literacies and TCs. Thus, we want to move research into action.

BACKGROUND

Theoretical Frameworks

Our theoretical frameworks were New Literacies and social justice. These frameworks relate to this chapter because of the primary, secondary, and tertiary digital divides found for low-income Latinx students and teachers, versus their wealthier peers (Bussert-Webb & Henry, 2016; Henry, 2010; Warschauer & Matuchniak, 2010). Additionally, digital literacies, ever-changing and contextualized (e.g., MySpace versus Instagram), inform New Literacies, an uppercase, dual-level theory. A theory of New Literacies signifies the Internet's importance and the necessity of new literacies to unleash the Internet's potential (Leu, Kinzer, Coiro, Castek, & Henry, 2017). Furthermore, multimodalities, social practices, strategies, skills, critique, and evaluation related to digital tools are important. Within this New Literacies framework, teachers are even more important, but their role transforms in multimodal classrooms to include guiding, facilitating, and orchestrating instruction (Leu et al., 2017).

The theory of New Literacies includes social justice components, such as the digital divide (O'Brien & Scharber, 2008). Thus, we attempt to address the digital divide through the technology practices we provide our TCs in class and for assignments. Our goal is for TCs to gain technological pedagogical skills with diverse learners. Accepting new ideas, people's new literacies and purposes for using technology

relates to valuing people's lived experiences and strengths (Freire, 2000). We constantly learn from our students and value what they teach us. Thus, we take a Freirean stance as educators as we learn with and from our students.

From a social justice perspective, Freire (2000) discussed policies and practices that privilege some. Freire believed we should analyze instances of oppression and systemic inequities and attempt to create a just world. Technology access relates to systemic inequities, for instance, poverty, immigration status, and neighborhood location. Yet, practices are also important. For instance, technology use in schools serving primarily low-income, minoritized children tend to focus on computer games for discrete skills and test preparation, typing or keyboarding skills, and the Accelerated Reader, a program in which children take comprehension tests over novels they read (Bussert-Webb & Díaz, 2012, 2013; Bussert-Webb & Henry, 2016, 2017a; Bussert-Webb, Díaz, & Yanez, 2017b).

Realizing TCs would probably find more of the same (an essentialist curriculum and pedagogy) assisting children during school, we decided to provide them with a different experience – CSL. CSL constitutes a social-justice pedagogy in which TCs engage with those receiving services (children) as having valuable experience and funds of knowledge (Maynes et al., 2013; González et al., 2005). Children teach TCs and vice-versa; both groups benefit. CSL, which relates to Freire's dialogue, is the opposite of a banking education model. In the latter, educators perceive children as empty vessels to be filled with official knowledge; thus, banking education represents a deficit perspective (Freire, 1994; 2000).

Literature Review

We begin our literature review discussing schools serving low-income, minoritized learners because this is the population most of our Latinx TCs encounter. The last part of our literature review focuses on TCs' digital literacy development when TCs at other institutions assisted children one-on-one for service-learning and taught in public school classroom internships.

Urban schools serving mostly high-poverty, nondominant students tend to have fewer resources and less technology integration than do wealthier schools (National Center for Education Statistics, 2010; Warschauer & Matuchniak, 2010). In her digital divide study, Henry (2007) found a relationship between high-stakes accountability testing and less technology integration in urban, low-SES schools. Teachers in those schools focused instruction on preparing students for offline state-mandated tests. High-stakes testing is part and parcel of *No Child Left Behind* (NCLB) legislation (U.S. Department of Education, 2002). The 2015 revision of NCLB, *Every Student Succeeds Act* (ESSA) (U.S. Department of Education, n.d.), has not appeared to diminish this testing focus in Texas, where our studies have taken place. Texas, which has the highest U.S. accountability pressure, has opted to maintain state-mandated testing and accountability (Nichols, Glass, & Berliner, 2012). High-stakes tests have enormous consequences for children and school staff, including child grade-level retention and school shut-downs (Nichols et al.).

It is more challenging for public school teachers to implement new literacy practices with high-poverty students who are emergent bilinguals because of high-stakes testing (Bussert-Webb & Henry, 2016, 2017a; García & Kleifgen, 2010). Teachers tend to focus on preparing low-SES bilingual children for high-stakes tests administered in English. After fifth grade, Texas children must take the state-mandated assessment in English only (Texas Education Agency, 2015a). Although Spanish state-mandated tests are available for these youth in third, fourth, and fifth grades, primary schools in our geographic area

tend to practice quick-exit bilingual education to transition students into English-only instruction and assessment (Hinton, 2015). Unfortunately, these children struggle in English tests because they have little academic foundation in their mother tongue (Chuang, Joshi, & Dixon, 2012; Goldenberg, 2008; Lutz, 2016; Thomas & Collier, 2003).

Next, contrary to common assumptions, Latinx do go online as much as other groups (López, González-Barrera, & Patten, 2013). Bussert-Webb and her colleagues conducted school- and agency-based longitudinal studies involving 767 participants in the Rio Grande Valley, Texas, one of the poorest U.S. regions (U.S. Census Bureau, 2010). Most children reported out-of-school access to computers, tablets, and cell phones and high-speed Internet, but scant homework related to information and communication technologies (ICTs) (Bussert-Webb & Díaz, 2012, 2013; Bussert-Webb & Henry, 2016, 2017a; Bussert-Webb et al., 2017b). However, teachers serving predominately low-income Latinx may assume their students possess no digital access, and thus may provide little higher-order digital classwork or homework practice in evaluating, synthesizing, and creating (Churches, 2008). Thus, we posit a relationship between a tertiary divide (skills), a secondary divide (practices), and teachers' assumptions about children's primary divide (access). We make a distinction between actual access and assumed access.

Regarding the tertiary divide, middle school children (grades six through eight) in a local school district scored an average mean of 1.95 on critically evaluating online information, the same mean their elementary-level peers (grades three through five) scored for this facet (Bussert-Webb & Henry, 2016). One would expect middle-level children to have a higher mean than their younger peers on this Digital Divide Measurement Scale for Students (DDMS-S). Paradoxically, 74% elementary and 78% middle school participants reported having computers at home. A small percentage had no Internet; thus, the primary divide was minimal (Bussert-Webb & Henry).

Alas, teachers, wanting the best for students, may believe they are following equitable practices by not requiring technology-related homework, due to perceived home inaccessibility. However, assuming poor children have no access may create barriers because these youth do not receive mentoring and practice in academic digital literacy. What is the result? Youth in poverty may possess digital skills, but if these skills involve only consumption, entertainment, and friendship (Warschauer & Matuchniak, 2010), these children will not be as academically prepared as their wealthier peers who receive more digital homework from teachers (Bussert-Webb & Henry, 2016; Montoya 2017; Warschauer & Matuchniak). Yet, what happens in high-SES school districts? The rich get richer, meaning that most teachers in schools serving predominately high-SES students assume youth have out-of-school digital access and thus provide more digital homework than do their colleagues in poorer districts (Henry, 2010; Warschauer & Matuchniak, 2010).

Furthermore, students and teachers in wealthier districts scored higher on online reading comprehension than did students and teachers in poorer districts (Henry, 2010; Warschauer, Zheng, Niiya, Cotten, & Farkas, 2014). Teachers in schools serving predominately low-income students are not receiving the training and resources necessary to meet the needs of diverse students in technology-infused activities and technology-related fields (Montoya, 2017; Zinger et al., 2017). Montoya argued for the importance of culturally and linguistically diverse teachers to motivate children in pursuing technology careers.

Although Greene and Hale (2017) discussed the glaring need for teachers' professional development in technology integration, they cautioned against training educators on isolated skills. Many U.S. teachers have low technology implementation in classrooms (Zinger et al., 2017). Yet where do most teachers come from? They hail from our teacher educator programs. They come from us. Many U.S. teacher educators, lacking expertise in digital literacies, are not preparing TCs to use digital technologies effec-

tively (Borthwick & Hansen, 2017). About 50% of U.S. teachers reported not receiving enough training in their teacher preparation programs and on the job to use technology effectively (U.S. Department of Education, Office of Educational Technology, 2017). European researchers have reported similar results (Tondeur, Pareja Roblin, van Braak, Voogt, & Prestridge, 2017). As per Zinger et al., "Limited modeling of pedagogically sound technology use is found in teacher preparation courses even in developed countries, since the faculty in such programs are often themselves not technologically proficient" (p. 587). However, TCs are expected to enter the teaching profession with the requisite technology skills. According to the U.S. Department of Education, Office of Educational Technology (2017),

Schools should be able to rely on teacher preparation programs to ensure that new teachers come to them prepared to use technology in meaningful ways. No new teacher exiting a preparation program should require remediation by his or her hiring school or district (pp. 35-36).

As per the U.S. Department of Education, Office of Educational Technology (2017), teaching TCs to use technology is not enough. TCs must have practice using technology in authentic, contextualized, collaborative activities in their teacher preparation courses (Zinger et al., 2017). Furthermore, TCs need practice with technology-infused lessons in the field with culturally and linguistically diverse children.

Using a longitudinal design (from 2008 to 2012) Tondeur et al. (2017) studied six new teachers' technology experiences in three teacher-education programs (two TCs per institution). They explored how these teacher preparation experiences influenced new teachers' technology implementation in primary and secondary classrooms. TCs received uneven training in educational technology applied to classroom settings. For example, in one teacher preparation program TCs used authentic, inquiry-based technology often in their courses and developed 10 technology-infused lessons in their internships in public school classrooms. However, in another program, TCs had only one ICT-related course, which focused on word processing and Excel. Tondeur et al. stated, "Although both beginning teachers felt additional support was needed, they valued the opportunity to apply their knowledge about ICT in authentic experiences during the internship," (p. 166). Some of the new teachers' schools had large percentages of non-native speakers and provided personalized language activities using technology for differentiation. Using computers, emergent bilinguals connected pictures with spoken and written words and watched videos. In other words, the emergent bilingual children were doing individual seatwork (versus collaborative activities) and worksheets on the computer (versus activities involving higher-order thinking) (Tondeur et al.).

One new teacher in Tondeur et al. (2017) reported the inability to move beyond once-weekly technology integration in her fourth-grade classroom because only one computer existed for her 19 students. Besides this extrinsic obstacle, she did not receive enough ICT training in her teacher-preparation program and did not learn how to rhizome around inequities, intrinsic obstacles (Tondeur et al.; Zinger et al., 2017). Previous studies show teachers with agency and proper professional development can find ways for students to use technology effectively, even with limited access (Zinger et al.).

The Tondeur et al. (2017) study called for a systemic improvement in teacher-preparation programs to meet the needs of culturally and linguistically diverse children through authentic, collaborative digital practices. TCs need to garner experience in sites where Internet is spotty so they can rhizome around the obstacle by using hotspots and finding locations in and out of buildings for better signals. If only a few children possess appropriate devices for certain activities, the TC can have them share. Hennessy et al. (2010), reported children using cell phones in classroom settings, "Although the technology has some

technical limitations and security issues, several mobile learning pilot projects are currently taking place and links with student achievement are emerging" (p. 44). Additionally, Hennessey et al. emphasized the intersection of culturally- and linguistically-relevant ICT use that is pedagogically principled.

How do we get there? Technology-infused school internships and CSL in minoritized, high-poverty communities can help TCs to gain experience in knowing how to adapt digital tools to fit diverse sociocultural contexts (Zinger et al., 2017). TCs need knowledge of the students they will teach, the schools and communities where they will teach, and how to integrate instructional technology effectively into those contexts. If students and teachers disagree regarding technology use for certain assignments or activities, they might become disengaged. For instance, Warschauer (1998) reported that although emergent-bilingual college students were initially excited about using computers, they became disengaged when their visions for writing conflicted with their college instructor's. For example, the instructor had students write the traditional five-paragraph essays and made students complete grammar activities on the computer (e.g., worksheets on the computer). The college students wanted more freedom in using technology for writing about topics of interest to them, and for communicating with each other through writing.

In our region, translanguaging or Spanish-English blending is common. We reported on Latinx TCs using iPads with children during their CSL to create a trilingual newsletter, with three versions of each article (Spanish, English, and translanguaging) from each child, based on the child's passion (Bussert-Webb, Masso, & Lewis, 2018). For the newsletter drafts, children changed iPad settings from English to Spanish, used the Notes App and microphone to transcribe spoken expressions, and used various Apps to create visuals to accompany each child's typed work. Velasco and García (2014) stated that these technology-infused writing activities are rare in schools, "Despite the multimodal affordances provided today by technology, few writing programs in schools make use of it, especially after the early grades" (p. 15).

Regarding Latinx TC experience with technology, Alanís and Machado-Casas (2018) discussed *La Clase Mágica* (the Magical Class), an after-school technology enrichment program in San Antonio, Texas, school districts. For service learning, University of San Antonio students majoring in bilingual education have helped elementary children in technology clubs at the children's schools for several years. TCs and the children are Latinx and bilingual in Spanish and English. The program focus has been bilingualism and biliteracy through technology and science. Although located on school grounds, the service-learning was after-school and the TCs did not have to incorporate the schools' curriculum. For the service-learning, each TC worked with a child to create digital products and engage in meaningful, creative, technology-infused learning activities.

In this study about *La Clase Mágica,* Alanís and Machado-Casas (2018) explored 20 TCs' perceptions of technology integration; TCs' technological pedagogy related to literacy and language; and the program's impact on TCs' future practice to engage linguistically and culturally diverse children. Alanís and Machado-Casas found that most TCs (mainly first-generation college students) experienced little technology when they were growing up and attending school; as children, the TCs encountered rigid, traditional teacher-focused pedagogy. Furthermore, most TCs had not used technology for authentic activities in their teacher preparation courses.

Through *La Clase Mágica,* TC participants learned to incorporate digital media to enhance their child partners' literacy and language knowledge and skills (Alanís & Machado-Casas, 2018). Furthermore, the TCs reported enjoying and valuing this experience and believed it impacted their future practices to engage linguistically and culturally diverse learners in authentic, higher-order technology activities. Specifically, the authors discussed TPACK, which combines knowledge of content, pedagogy, and tech-

nology, to teach various disciplines. The hands-on experience with children helped TCs to overcome their fears and provided them with self-efficacy in incorporating instructional technology in their bilingual classrooms. The technology-infused experiences helped the TCs to transcend the traditional pedagogies they had experienced as public-school students. Alanís and Machado-Casas stated that *La Clase Mágica* afforded "… possibilities they might not experience otherwise," as TCs explained that it "was the first time they actually used technology pedagogy" (pp. 249-250). Alanís and Machado-Casas concluded that these after-school technology programs with culturally and linguistically diverse children are essential in preparing new teachers for developing TPACK and that this preparation starts with us, teacher educators.

METHODOLOGY

Qualitative

Our research explores people's lived experiences and narrative reflections; thus, our inquiry is qualitative in nature. This section discusses our distinct yet related studies, which our university's Institutional Review Board (IRB) approved and oversaw.

Positionality

As qualitative researchers, we recognize our subjectivity as we analyze data and write this chapter (Creswell, 2007). Bussert-Webb's insights also come as a former remedial reading teacher in the local public-school district and as a parent. Bussert-Webb's daughter attended this school district from grades one to five and attended our university for one and a half years before transferring. Due to the school district's high-stakes testing focus in middle- and high-school levels (Bussert-Webb, 1999, 2000), Bussert-Webb's daughter did not attend this school district. We also base our knowledge of local schools and our university on our roles as teacher educators and as professors of in-service teachers and administrators who are our Master's and doctoral students. We read what our pre-service and in-service teachers write about high-stakes testing and accountability pressures. We hear their laments about the difficulty of integrating instructional technology effectively in these contexts. Bussert-Webb has taught at this university since 2000; Lewis began teaching here in 2013. For one year, Bussert-Webb taught children an after-school cultural arts program at a local elementary school and collaborated with the school staff for this project (Bussert-Webb, 2008). For several years, Bussert-Webb observed her students teach lessons in public school classrooms, and she collaborated with the local school district for two years on a grant. She visited local elementary and middle schools several times as she assisted with the TC mentor and technology aspects of this program (Bussert-Webb & Henry, 2016, 2017a). Last, we recognize our biases, privileges, and power as white middle-class professors.

Sites

Our chapter extends the collaborative work of Bussert-Webb and Lewis. Our qualitative studies have taken place at an after-school tutorial agency and on our university's campus. Both sites function in one of the poorest U.S. cities, with a population of about 200,000 (U.S. Census Bureau, 2010). Most TCs in our studies have attended public primary and secondary schools in this city and now attend our

university. Because of family and community ties, most of our TCs stay in our geographic region once they become full-time teachers. The district in our city has scored best in the U.S. among public school districts for state-mandated assessments, compared to other high-poverty schools; this is the Education Equality Index (EEI) (Dauter & Olivieri, 2017). Our local school district, like many serving primarily low-SES, nondominant children, leads the nation in preparing students for high-stakes testing (Nichols et al., 2012).

Colonia

We start by discussing the off-campus site and Bussert-Webb's 2016 and 2017 projects there. Bussert-Webb began sending her students to the colonia's tutorial agency for CSL projects in 2003. Lewis began sending her students to the same site in 2013. In 2006, Bussert-Webb began supervising and teaching her TCs on site at this agency and commenced CSL research. This chapter includes Bussert-Webb's summer 2016 and 2017 data with TCs at this agency, which a non-governmental agency (NGO) runs. About 35 children attend the agency for homework help.

This agency operates in the poorest U.S. community for its size, with $4,000 per capita and a $25,000 median household income; 54% of residents live below the poverty line. (U.S. Census Bureau, 2010). This community, with clear boundaries, is about .6 square miles (1.6 km^2) and has about 7,000 residents. About 99% of residents in this neighborhood are Latinx and speak Spanish as a mother tongue; only 31% of adults earned high school diplomas or equivalent (U.S. Census Bureau). The Texas Secretary of State (2010) classified this neighborhood as a colonia, or an unincorporated settlement lacking basic services. Colonia residents fought for justice for clean, running water, paved roads, sidewalks, and other services deemed acceptable in developed countries (Bussert-Webb et al., 2017b). Furthermore, the colonia lags behind the city of 200,000 that refuses to annex it. For people at least 25-years-old, the colonia's college graduation rate is 1.3%, while the surrounding city has a graduation rate of 16%. Children represent about 2,800 (40%) of this colonia's residents (U.S. Census Bureau). Although this colonia now has an appropriate infrastructure, it shares educational and financial challenges with other Southwestern colonias, yet also many strengths, such as unity (Bussert-Webb et al.; Donelson & Esparza, 2016). We recognize the systemic inequities and colonialism (Anzaldúa, 1990) related to this neighborhood of promise, including the low expectations and marginalization the colonia children have experienced from some of their teachers (Bussert-Webb et al.).

In May 2016 and 2017, Bussert-Webb taught intensive three-week courses at the agency in the colonia. TCs in both years tutored children, helped them with homework, taught technology-infused lessons, and facilitated the children's creation of an electronic newsletter with articles and multi-media visuals. Bussert-Webb's students worked with the children daily from 3:30 pm to 5:30 pm. When the children and tutorial staff left, Bussert-Webb and her students held class in a tutorial agency room until 9 pm. In this CSL, the TCs discussed and wrote reflections of their service connected to course content.

Campus

The second research site, located in the city of 200,00 that surrounds the colonia, has been on one of our university campuses, where Lewis taught educational psychology courses in the College of Education's teacher preparation program. Our South Texas university, with about 28,000 students, is classified as a Hispanic-Serving Institution (HSI) and has a distributed campus (in different cities); 89% are undergradu-

ates, and 89% are Latinx. Most of our undergraduates receive Pell Grants, based on financial need. Like children from the colonia who attend local schools, many of our university students face interrelated obstacles related to poverty, immigration status, and being first-generation college students. Enrollment at HSIs lags behind other institutions because of these and other confounding, interrelated contexts (Espinosa, Turk, & Taylor, 2017), yet our institution is one of the largest HSI's in the U.S. Many TCs in our courses are products of the schools in the region – frequently with fewer resources. This is a compelling reason to integrate instructional technology and experience with leveraging digital tools for instruction.

In fall 2018, Lewis taught an educational psychology TC course in cognition, learning, and human development. She designed the course around CSL, experiential learning, and technology integration to apply theory. Previously left to individual instructors to choose whether and how to include CSL in their section of a course or not, Lewis piloted a master syllabus that systematically integrated and leveraged CSL; her department's goal was to scale up CSL integration in all sections of the required courses. Currently, Lewis is teaching the same course (spring 2019), and all instructors for the sections of the course are following her CSL and technology integration.

Participants

As reflective teacher educators and qualitative researchers, we are participants in our own studies. Other participants were 60 TCs in our courses in 2016, 2017, 2018, and 2019, mostly college juniors, who planned to teach bilingual education, English as a second language (ESL), English language arts, math, history, science, music, communications, theatre, and kinesiology. Although all were Latinx, some did not speak Spanish.

Bussert-Webb's studies (conducted in 2016 and 2017), included 28 TC student participants. In 2016, 14 students (all female) were enrolled in Bussert-Webb's literacy, language, and culture course; one chose not to take part in the study, n=13. The 2017 participants were enrolled in Bussert-Webb's content area literacy course, focused on infusing literacy concepts and strategies into TCs' disciplines. All 15 students in 2017 chose to participate, 12 females and two males.

All students (n=32) enrolled in Lewis's fall 2018 and spring 2019 sections agreed to participate in the research. Lewis taught the same educational psychology class, required in the core; all students were juniors and seniors recently accepted into the teacher preparation program for secondary education. Of the 17 fall 2018 students, nine males and eight females, 15 were Latinx and two Anglo (White). Three students lived in Mexico and crossed the border to attend university classes. Of the 15 spring 2019 students, eight males and seven females, all are Latinx. Two students live in Mexico and commute across the border for classes.

Data Sources

Reflecting on CSL experiences tied to course content is essential for students and professors (Maynes et al., 2013). Our students submitted reflective digital journal entries that described their CSL and school observation experiences and made explicit connections to course content. Data sources included our reflective narratives, such as our field notes based on participant observation. Other data sources were TC surveys, focus group discussions, technology-infused lesson plans, daily learning logs, online TC dialogues, and reflections.

Data from Lewis's classes include her weekly field notes based on class discussions, TCs' weekly digital reflective journal entries, peer feedback, and final multimedia presentations (in lieu of a final exam). Leveraging web-conferencing software (e.g., www.Zoom.us), Lewis invited students to participate in a focus group discussion of their CSL learning experiences. Furthermore, each student composed a final reflective essay that drew from the progression of weekly journals.

Furthermore, Lewis's participants completed surveys (a pre-/post-anticipation guide), so we could assess and gauge their understanding before and after a lesson. Bussert-Webb has presented in Lewis's 2018 and 2019 classes to supply the theoretical and empirical support for CSL and technology-infused instruction. Students completed an anticipation guide (with true and false statements about technology, digital literacy, and CSL) using a link that Lewis supplied.

Procedures

Research

TCs signed consent forms before we engaged in data gathering. Bussert-Webb collected all data from summer 2016 and 2017 students. Lewis collected most data from her 2018 and 2019 courses, except for the pre- and post-anticipation guide, which Bussert-Webb collected. For member checking, Bussert-Webb read aloud what she had typed during the focus group and asked TCs to make changes and additions to her simultaneous transcript. However, since Bussert-Webb also audio-recorded the focus group discussions, she had research assistants transcribe the recordings; she emailed the transcriptions to participants for member checking. Lewis engaged in member checking through in-class discussions, after-class conversations, and emails with students.

CSL and School Observations

We have engaged TCs in CSL and technology for our 2016, 2017, 2018, and 2019 studies. With agency tutorial staff, Bussert-Webb supervised her students' work with the children. For the 15 CSL hours we have required, TCs apply methods and concepts they learn in our courses while supporting their tutees' learning. TCs also design and implement technology-based lessons with the children and provide tutoring for homework the children bring from school. Engaging with the children at tutorial agencies enables TCs to see and explore community strengths and challenges in learning contexts outside of the formal school setting.

Lewis utilized our university's Engaged Scholarship center, which facilitates and centralizes resources for community engagement through a digital portal; students may search for suitable community partners and CSL opportunities that work with TCs' interests and schedules. The center assigned ambassadors to support the students' CSL experiences and monitor service hours TCs provided. The community partner also verifies each student's hours; the student logs the hours in the portal and writes a descriptive reflection to submit the hours. A minimum of 15 hours is required for a service-learning course, however many students voluntarily engaged in more than the required hours.

By administrative decision, Lewis's fall 2018 students observed in public school classrooms. For 15 hours, each TC sat at a student desk and observed the teacher and students and wrote reflections on Lewis's course concepts. Administrators decided not to require field observations in Lewis's 2019 course.

However, TCs do conduct field observation in schools for other courses. Thus, students are still able to draw from both CSL experiences and field observations in their 2019 reflections.

Data Analysis

We engaged in a thematic analysis involving iterative multiple readings (individually and together as co-authors) for coding, sorting, categorizing, and identifying patterns and emergent themes. We do present some findings to illustrate our reflections, but we focus on lessons learned and implications for practice. Thus, the reflective process of our research remains essential. We engaged in peer debriefing with each other, agency tutorial staff, and colleagues who have engaged TCs in CSL.

LESSONS LEARNED

The following discussion of our research findings emerged from our thematic analysis of all data sources across the two studies. We reflect on lessons learned and implications for practice.

Our Risk-Taking Is More Important Than Our Digital Expertise

Bussert-Webb engaged 2016 TCs in technology-infused lessons in class sessions and had them do so for CSL, but with a Bring Your Own Device (BYOD) model. In the 2016-2017 academic year, Bussert-Webb and Lewis received university loaner iPads as part of a college of education initiative; Bussert-Webb participated in Apple professional development applied to classroom practices for six months. Also, as part of her endowed chair, she received 22 iPads for classroom use before implementing the iPad project in her 2017 course and CSL. However, she felt terrified to teach an entire iPad-infused course. A week before the first 2017 session, she met with the iPad educational coordinator one hour away to practice using Apps for lessons. (This one-hour away facet was important, as it meant that Bussert-Webb was on her own during the summer course and CSL, which met daily.) In the meeting with the coordinator, one free App (ShowMe) no longer allowed users to send ShowMe files. This technological change made Bussert-Webb, who suffers from anxiety, feel out of control; she wondered what else would go wrong with iPad lessons she had planned. Thus, Bussert-Webb decided to change her stance from technical expert to learner. She told students on the first day, "You will know more about technology than me, but I want to learn with you. We are here to help each other." During the 2017 session, she asked her students to help her and each other; they used iPads often to collaborate in activities and to create visual representations of what they were learning. They also formed groups to teach mini-lessons to the class; peers pretended that they were students in public school classrooms when they used their iPads for the micro-lessons. Having TCs use iPads for course activities was intimidating for Bussert-Webb, because it involved making herself vulnerable to students and showing she was not a technology expert.

Lewis did not receive any Apple or iPad training. She also adopted a learner stance. She shared her novice status with her students and engaged in a collective exploration of the process of integrating iPad-use into instruction in her classes. She felt apprehensive about introducing iPads into her instruction, but she took the risk and embarked on the learning journey with her students. Teams of students worked collaboratively to familiarize themselves with the iPads and several Apps. Students identified the various locations of their CSL sites using Google Earth (and used screen recordings (under the Control tool) to

trace their steps from the CSL agency to their classroom). When Bussert-Webb observed Lewis's class, Lewis had TCs help her and each other with the screen recording App. Lewis (2018) has written about her risk-taking and lessons learned and has continued to reflect on her technological pedagogy.

Social scientist Brown (2017), who explored risking failure and vulnerability, found that those taking leaps of faith benefit, as do those around them. Although people learn new things and outgrow themselves when they take risks, Brown discovered fears of uncertainty and facing exposure have caused people to avoid risks. Taking a stance of an expert in all things is stressful, because it causes us to believe we need to be perfect (Brown). This fear is especially pronounced for people diagnosed with anxiety disorder, such as Bussert-Webb. Additionally, knowing everything about evolving technology is impossible. For example, the ShowMe App Bussert-Webb wanted to use with her TCs had changed. Pedagogy and social science content are generally stable over time, according to Zinger et al. (2017), but "technology is continually changing and evolving, creating a shifting landscape that is challenging for teachers to master," (p. 582). Thus, instead of expertise, Zinger et al. stated that teachers should be proficient in leveraging useful, relevant technologies to engage students in learner-centered, authentic experiences. Furthermore, teachers who learn new digital technologies with students are modeling life-long learning (Zinger et al.).

The logistics of Bussert-Webb and Lewis's integration of unfamiliar instructional technology into the teaching-learning process proved time-consuming, and everything did not go according to plan. Bussert-Webb loaned Lewis the 22 iPads, bought with endowed chair funds. Since the university owned these iPads, they did not want students to check them out for long-term use. Thus, TCs had to return them after each session. We sought administrative permission to allow TCs to check out the iPads for individual long-term use, to no avail. Because some TCs had never used Apple products, they could not acclimate to the iPads on their own time. Also, we had no iPad technical support on our campus. Thus, the challenge of working through problems using the iPads took up class instructional time. TCs and Lewis had to overcome log-in issues, e.g., using the university's passcode to open a device and using its username and Apple ID to download Apps.

However, these technical issues for which Lewis was unprepared to trouble-shoot emerged as teachable moments. Ultimately, the frustrating experience informed Lewis and her students' practice. The investment of time and opportunities to become familiar with and comfortable using the iPads and Apps, particularly when not intuitive to some users, emerged as a finding. Simply providing iPads to instructors and students did not ensure effective and efficient integration of technology in instruction and learning. We found technical skills were important, but we also needed content knowledge and knowledge of pedagogical practice, which thankfully we possessed (Tondeur et al., 2017).

Last, many of Lewis's students preferred to use their own devices, with which they felt more self-efficacy in navigating. These included smartphones, laptops, and tablets. Rather than insisting on a single device for all to use, Lewis gave them the option to use the devices they were comfortable with and could continue to use in and out of class time. This strategy served as a more practical approach for integrating instructional technology in the teaching-learning experience. TC observations in one-to-one iPad adoption in some classrooms revealed similar issues and student preferences for using their own devices. The lesson learned regarding the importance of empowering the learner with their choice of device may inform schools and teachers in making decisions regarding adoption of single device approaches to technology integration. However, we offer a caveat. We have found risk-taking in learning to use new tools is essential so TCs and we can become flexible technology users (Zinger et al., 2017). For instance, some of Bussert-Webb's TCs expressed fear in using Apple products and wanted to continue using only IBM products in her class and for the CSL. However, she asked them to stretch, to lean

into the discomfort, so they could model risk-taking as teachers (Brown, 2017). At the end of the term, those with no previous experience using Apple products expressed satisfaction in learning and teaching through iPads, which Bussert-Webb provided from her endowed chair funds.

Teach Digital Literacy Amid Social Justice Contexts

Beyond strategies, instructors and students need to know why they are engaging with instructional technology, how it enhances learning, and the research and theoretical foundation for implementing it. Thus, TCs and we discussed the rationale behind and value of the integration of instructional technology in teaching and the challenges, pitfalls, and barriers to effective implementation. TCs then brainstormed ways instructional technology, such as iPads and Apps, could be leveraged in meaningful ways to enhance their own and their future students' learning experiences and ways they could circumvent inaccessibility.

Next, we explained to TCs that the digital divide is not simply about technology access. Technology is ubiquitous, yet predominantly for personal consumption, such as social communication, entertainment, and consumption among youth in poverty (Warschauer & Matuchniak, 2010). We discussed with TCs the three-tier divide (Henry, 2010). Some TCs stated that not providing digital homework related to being sensitive to children's inadequate out-of-school access. Based on fall 2018 and spring 2019 data analysis of the pre-surveys, 48% of TCs believed teachers should not provide technology-related homework to poor children, whom they assumed possessed no digital out-of-school access. After Bussert-Webb's presentation, which touched on this no-access myth, most participants indicated that teachers should get to know their children, ask children one-on-one about access, and help to provide access to those without, rather than assume no children had access.

We discuss the access myth because our TCs engage in CSL in some of the poorest U.S. neighborhoods. In the pre-anticipation guide, most 2018 and 2019 TCs believed the college graduation rate was stable across neighborhoods in our city. They learned that the colonia's graduation rate was 15 percentage points below the surrounding city's (U.S. Census Bureau, 2010). This is important because TCs in 2016 and 2017 tutored children exclusively in this colonia and many of Lewis's 2018 and 2019 students tutored there. Also, colonia children reported little practice in leveraging technology for academic purposes and higher-order thinking; the scant digital homework was for discrete skills and state-test preparation (Bussert-Webb & Díaz, 2012, 2013; Bussert-Webb & Henry 2016, 2017a; Bussert-Webb et al., 2017b). Lewis's TCs' reflections on their field observations in schools also confirmed patterns in the prevalence of technology use for standardized test preparation, testing for points in the Accelerated Reader (AR) program, digital worksheets that simply replaced paper worksheets, and games to occupy or reward students who finished their assignments.

Next, based on pre-survey results, most 2018 and 2019 TCs were unaware that the digital divide also involved practices and skills. Also, most believed this statement was true before Bussert-Webb's lesson: "Teachers who touch technology during their whole-class teaching are using technology pedagogy effectively." After Bussert-Webb's lesson, TCs indicated that children must also touch technology. We discussed deeper issues related to underlying educational beliefs (Zinger et al., 2017). While some school district administrators hailed test-preparation games (Bussert-Webb & Henry, 2016; Bussert-Webb et al., 2017a), Bussert-Webb explained to TCs that low-level skills were still low-level skills, regardless of the medium. Hence, paper worksheets with individual seatwork become merely worksheets on computers with individual seatwork (Kellinger, 2012). The U.S. Department of Education, Office of Educational Technology (2017) expressed concern "by the number of children left alone for long periods of time

with a passive digital babysitter" (p. 1). In their mixed-methods U.S. study of 1,048 teachers, involving surveys and interviews, Ruggiero and Mong (2015) discovered teachers with learner-centered technology activities were learner-centered in other areas. As one first grade teacher in Ruggiero and Mong said, "Technology is a means . . . a mode . . . the content is still most important, it is just delivering your voice and thought in a technological way" (p. 169). In other words, the tool is not the most important thing. How and why we use the digital tool are essential. Thus, TCs must learn the theoretical and empirical foundations for digital literacies, versus merely engaging in digitally-infused activities.

Next, as per the pre-anticipation guide, most 2018 and 2019 TCs did not realize kindergarten through grade 12 teachers are responsible for teaching media literacy skills. However, the Texas Essential Knowledge and Skills (TEKS) require Texas public school teachers to teach media literacy to children in grades kindergarten through 12 (Texas Education Agency, 2015b).

It is important to recognize the difference between cultivating digital literacy versus simply providing access to technology. Technology is a facet of digital literacy, and digital literacy is a facet of New Literacies (Bussert-Webb & Henry, 2016). Access to devices does not automatically result in digital literacy. Thoughtfully and purposefully implementing technology in instruction for modeling and applying and cultivating specific digital literacy skills positions students for success. In short, children learn how to learn using digital resources. Digital literacy is essential for successful employment in nearly any career. Thus, barriers to meaningful engagement with digital resources for inquiry-based learning becomes a social justice issue. The systemic oppression resulting from limited experience with digital literacies hobbles students' choices and ability to succeed in 21st Century careers.

Our TCs learned that integrating meaningful engagement with instructional technology in schools and higher education remains a complex challenge. The three-tiers of digital divide present practical, logistical, financial, and affective hurdles to overcome. A conundrum in education relates to limited school resources in low-income communities, policies, and pressure to perform on high-stakes tests, and the time investment required to acclimate to rapidly advancing technologies. These barriers are coupled with teacher educators' and in-service teachers' apprehension and inexperience, assumptions and attitudes about students' out-of-school digital access, and hesitance in the vulnerability of taking risks. The multi-faceted challenges may be daunting, yet they are not insurmountable. Indeed, the integration of instructional technology aimed at intentionally cultivating digital literacies is a compelling problem in contemporary education at all levels.

Engage TCs in Authentic Technology Experiences

We endeavored to create positive, safe classroom communities to empower TCs so they could feel they were the ones teaching the professors (in fact, they were). As teacher educators, we engaged in taking risks to be vulnerable, admit lack of expertise, explore, and learn with our students. The instructors and students remained open to making mistakes while co-creating experiences, problem-solving technological challenges, and leveraging instructional technology for higher-order learning.

Lewis begins each semester with a low-stakes assignment. Students create an introduction video using any device available, often their smartphone. This activity allows her to ascertain the experience and comfort level of each student to leverage technology for the assignment, which provides an indication of scaffolding needed for subsequent assignments requiring the use of digital resources. Students reveal their comfort level and familiarity with technology they tend to use for personal and social purposes for a class assignment, thus setting the stage for leveraging technology and digital literacies for academic work.

Bussert-Webb's and Lewis's TCs researched contextual factors and demographics of the communities where they engaged in CSL, responded to peers through their courses' online discussion boards, and reflected on their experiential learning via digital journaling. TCs integrated images and photos into their reflective journal entries, logged their hours in the university community engagement portal, exchanged files through the Airdrop feature of their iPads, and submitted their work through Airdrop. TCs worked with partners, thus applying a social constructivist approach to engaging with peers and learning to navigate digital resources. More experienced or knowledgeable peers helped class members and the instructors.

The intention of creating a safe space to explore digital literacies, apply new digital literacy skills, and practice using technology for teaching and learning provides opportunities for students and instructors to take risks, make mistakes, and learn from errors. We can extend beyond the comfortable. The familiar would be assigning digital worksheets, testing online versus on paper, and transmitting information using technology that merely mimics older versions (document projectors versus overhead projectors). For example, PowerPoint presentations were the most-reported technology pedagogy in a sample of 1,048 teachers (Ruggiero & Mong, 2015). Going beyond by affording TC and child engagement in generative, authentic activities requires our willingness to be uncomfortable and a steep learning curve (Zinger et al., 2017). Allowing TCs to witness us taking risks and learning along with them models the instructional approach necessary for the advancement of technological and digital literacies to flourish (Zinger et al.).

Moreover, we asked students to investigate and share digital resources, plan and deliver instruction to integrate instructional technology, and apply their emerging digital literacy skills; their peers served as their students. Subsequently, students and instructors engaged in observational learning, and we scaffolded hands-on application prior to TCs using their new skills in their own classrooms. As students become comfortable trying out new Apps with partners and brainstorming opportunities to leverage instructional technology in authentic ways in their content area, they begin to develop their own collection of digital resources for future teaching and learning.

Our homework assigned to TCs has reflected the kinds of assignments they may assign to their future students. Assignments draw from a growing collection of free digital resources for inquiry and authentic purposes. Since each school district adopts different platforms and tools, it is insufficient to learn one kind of device or system or software. The ever-shifting technological landscape requires educators to be nimble, perpetually adaptive learners (Leu et al., 2017; Zinger et al., 2017). We acknowledge the plethora of Apps and rapidly changing digital resources and our own limited experience and adeptness with many tools. We emphasize others must be open to learning and adapt constantly to advances in technology and emerging digital resources (Leu et al.).

Last, through their experience, TCs in our CSL classes recognized the need to engage diverse students in digital resources to foster digital literacy development, essential in contemporary society, particularly for nondominant learners in poverty.

Provide Technology-Infused Community Service-Learning Experiences

We have learned that when introducing CSL to TCs, we must provide empirical and theoretical support; TCs want to know why they are going to community agencies to engage children with technology. Thus, we teach students that CSL benefits them and children and that TCs are not saviors of children in poverty (Sperling, 2007). Next, we explain that this CSL pedagogy relates to social justice, because teachers and students learn about systemic inequities, critique these inequalities, and try to change the situation (Freire,

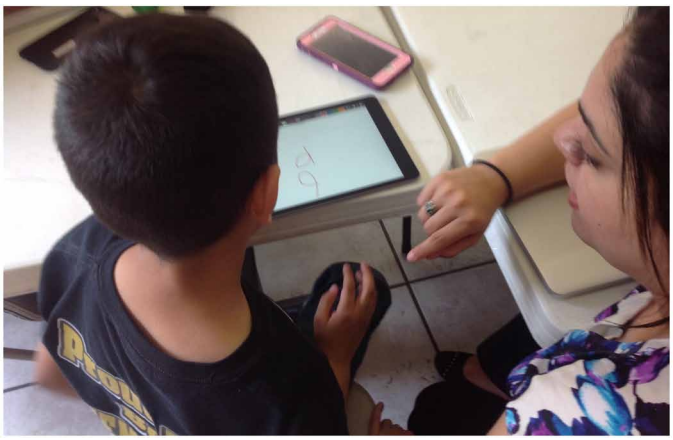
2000). TCs discuss examples of systemic inequities they have noticed during their CSL, e.g., school gentrification and the dull, discrete skills-focused homework children receive. Systemic oppression in the colonia in our studies and other parts of our city are perpetuated by limited engagement with digital resources for meaningful inquiry and higher-order cognitive tasks. These inequities can inhibit children's development of digital literacies and cognitive skills (Bussert-Webb & Henry, 2016; Churches, 2008).

We highlight examples of ways the TCs and children used technology to facilitate digital literacy development. In Bussert-Webb's 2016 and 2017 CSL-based courses, TC tutors and child tutees used iPads for crafting their learning logs at the end of each session, and then used the Air-drop feature to submit to Bussert-Webb. Each learning log reflection included narrative reflections, photos/visual screen captures, and some digital drawings and recordings. TCs in Bussert-Webb's 2016 and 2017 courses helped the children with composing a trilingual newsletter on the iPads. The children composed each article in Spanish, English, and translanguaging, with coaching and encouragement from their TCs. Each article included photos or drawings. We tried the Sway App; however, our TC editors could not edit the file, so we had to adjust our plans and use Microsoft Publisher.

In Figure 1, a TC (English language arts major) from Bussert-Webb's 2017 study is working with a six-year-old boy using visuals to teach vocabulary, based on a story they read. It appears the child is considering what to do next and that both the TC and child are using the iPad. The viewer can see the proximity of the TC and child, that TCs learn alongside of children. From our research and experience, our TCs have not reported this one-to-one connection in field observation experiences in formal school settings.

Additionally, Lewis's TCs took photos at their CSL sites to illustrate weekly technology-infused activities they engaged in with their tutees. For example, music education TCs introduced their tutees to the App Tenuto and an instrument tuning App, an art education TC employed Photoshop and Google Images, a History TC used YouTube with his tutee to research historical figures, and a Spanish Educator TC used Mango and Duolingo Apps and Google Translate with her tutee. Lewis's TCs took screenshots of the instructional activities they prepared and resulting products and engaged in shared digital journals; in the online learning management platform, they provided written or audio recorded feedback to their peers each week in rotating, assigned groups.

Figure 1. TC and child using technology



Lessons Learned

Lewis's final CSL culminating assignment involved TCs compiling a multi-media recorded presentation that integrated what they learned from the course and CSL experience. Each student drew from their interactive reflective journaling and digital artifacts throughout the CSL experience and compiled a digital portfolio that included a narrative reflection piece, digital photo montage, and link to their recorded presentation. Three music education TCs each composed an original musical piece with lyrics reflecting what they learned; they recorded their performance of their original piece. Another group scripted a mock talk-show interview and recorded their interview performance. One TC presented a TED Talk-style video, and another compiled a voice-over recorded commentary with background music for a Prezi that highlighted his journey through visual images. All class members viewed each other's recordings and provided comments and feedback to their classmates via an online discussion board.

TCs and we have reflected on ways CSL provides opportunities for exploration and hands-on experience. For instance, a theatre major's comments during Bussert-Webb's focus group discussion revealed his changed perspective; he realized digital tools could help his content area instruction and that technology was more collaborative than he had thought. He stated,

With technology, it was an eye-opener to see how great of an impact it can have on education… it did open my eyes to things that certain aspects of theater that can actually involve much more technology and can actually make some lesson much easier, such as designing or planning some stage designs or blueprints for building a stage, it can make all of that much easier… But going through this whole project and program, I mean, it kind of opened my eyes to see that it can be more collaborative.

The CSL experiences provided flexibility and opportunities for children to try digital resources (such as iPads) they may not access to or time to explore in formal school settings. For example, a math TC in 2017 explained she helped her tutee learn how to use an iPad by connecting the child's knowledge of another device. She also discussed the collaborative nature of the CSL, as she teamed up with another TC to help children,

Uh huh, The Airdrop, and she didn't know how to use the refresh button on the Internet. She did not know how to screen shot, and she did not know, uh, I can't remember the other things she did not know, but we showed her several new things on the iPad, because she had an Android phone, so the things she was able to do she was because she was connecting her prior knowledge connected to her Android with the iPad. She used what she knew how to do with an Android. We, me and [TC], because we were basically partners all the time.

Aligning with our experiences of taking risks alongside students, a TC confirmed the value of reciprocal learning during the 2017 focus group,

I think that we were, well personally myself, I was learning along with my student using technology. Like with the Airdrop and stuff. I remember when we had to Airdrop something to you - I had forgotten how to do it, and she remembered how to do it, my tutee remembered.

TCs reported valuing the CSL experience. They shared that when they attended required field observations in formal school settings, they observed teachers and youth in a classroom, and they did not have the opportunity to teach until their final semester of student-teaching in the teacher preparation program.

At our institution, field experiences are only school-based, and service learning is only community-based. An opportunity to bridge digital divides may be found in blending school-based and community-based field experiences that leverage digital resources and hands-on instructional technology application and learning experiences for TCs, students, and in-service teachers.

During a focus group discussion that followed Bussert-Webb's CSL course, Edith (pseudonym) shared comments that captured what TCs in our studies collectively expressed: TCs must learn to rhizome around technical difficulties and systemic inequities. Furthermore, Edith stated that informal environments could teach TCs how to teach (that CSL is reciprocal) and that TCs can learn to teach for justice when they engage in CSL. Edith said,

Um, within this program it was really fortunate of us to be able to gain a lot of experience. As one of my classmates already said, it was difficult. We had to be really creative. We had to learn how to adapt our different lesson plans and strategies, but I think what was one really great thing was that in comparison to having like a regular class, we got to see the lesson plans be acted out, instead of just reading about them. So, we all got a lot of really good ideas about how to adapt our lesson plans; how to take them into action. And it worked out for all of us, because now we know as future educators what can and can't work. It was also very…..it was also very, uh, an eye opener? Because we read about all different kinds of school environments; we read about the ones that have money-the ones that don't have money, but to be able to work with students I think you gain a better understanding that the student has a very big impact on us as future educators instead of just us on them. And I think that's something important that I haven't gotten from any other class, because it's usually what can we do for them. And that's something I did learn from this program-what we got from them. I think I'm, me as a person I'm really determined to really give it my all to all students, despite the kinds of obstacles they have at home or in their neighborhoods or anything like that. Um, it really helps to work with these kinds of students, because you see what kind of really great kids they are; what kind of needs that they have. It makes you that much more aware of what needs to be done in our career.

The above quote also demonstrated the TC's advocacy stance for economically-disadvantaged students, something she planned to continue when she becomes a teacher.

IMPLICATIONS AND CONCLUSION

From our studies with TCs involving technology and CSL, we learned that our risk-taking is more important than our digital expertise, that we must teach connect digital literacy to social justice contexts, we must engage TCs in authentic technology experiences, and that we can provide technology-infused community service-learning experiences to strengthen technology integration in teaching-learning situations. A limitation of our work is our subjectivity as qualitative researchers. However, we attempted to remedy this bias by member-checking with TCs, consulting several data sources, a communicating with each other and with colleagues for peer debriefing, and reviewing the extant literature.

Furthermore, we have discovered several implications for pedagogical practices. First, we cannot afford to contribute to systemic oppression. We must address inadequate opportunities to develop new literacies in and outside of school. We must challenge assumptions about the digital divide only as an access issue. Additionally, we cannot allow our apprehension with technology to prevent us from integrating digital

resources into our instruction and learning along with our students. Many of our Latinx TCs grew up in this region and attended local schools – frequently with fewer resources. Based on the studies we have cited in this chapter, these TCs may not have a frame of reference for high-quality digital experiences in instruction. Thus, integrating digital literacies in our teacher preparation courses is urgent (Zinger et al., 2017). Encouraging a shift in educators, specifically teacher educators, to adopt a learner stance, embrace vulnerability by acknowledging one is not the expert, and exploring unfamiliar instructional technology and digital resources alongside students represents steps towards mediating the three-tier digital divide.

Yet, we cannot work in a vacuum. For systemic positive effects, our programs, departments, colleges, and universities must express clear visions and policies regarding technology integration and must provide on-going tools and training for teacher educators and professors (Tondeur et al. 2017; Zinger et al., 2017). Furthermore, digital literacies must be integrated throughout teacher preparation and university courses.

Next, although it is preferable for TCs to garner experience in the grade levels for which they will be certified, TCs can also gain experience working with parents and other adults in the community; as teachers, they will need to collaborate with their students' guardians and community members. Particularly with rapidly evolving and advancing technology, we are all life-long learners.

If not thoughtfully planned, meaningfully leveraged, and grounded in practical experience, instructional technology integration will be constricted to academia, superficial use for a grade, merely a fad adoption, or just a requirement. Rather than employing technology for the sake of technology, such as in tech for tests, digital worksheets, or transmission of information, educators, children, and TCs can learn to use a variety of digital resources and instructional technology for higher-order 21st Century purposes (Churches, 2008).

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KEY TERMS AND DEFINITIONS

Colonia: An unincorporated or unannexed Southwestern settlement with high poverty and limited basic services, such as drainage and paved roads.

Community Service Learning: A service experience addressing a community need, which is reciprocal and connected to course objectives and student learning.

Digital Literacy: Socially situated practices supported by strategies, skills, and dispositions that enable the understanding and representation of ideas using multimodalities enabled by digital tools.

Latinx: A recent gender neutral, non-binary alternative term for Latino/Latina, meant to affirm all people of Latin American decent. Also, Latinx (versus Hispanic) is used to indicate people who have more affinity toward the Americas than Spain.

New Literacies: A theory signifying the Internet's importance and the need for new literacies to unleash the Internet's potential; social practices, strategies, skills, multimodalities, evaluation, and critique related to digital tools are important.

Rhizome: Drawing from a metaphor of botanical growth, a rhizome will grow in the opposite direction if presented with an obstacle.