Teaching during a Pandemic: Elementary Candidates' Experiences with Engagement in Distance Education

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Abstract

The following research reports on a collaborative effort between two university field supervisors for an elementary teacher preparation program in the Pacific southwest. Utilizing practitioner inquiry and situated learning as conceptual frameworks, the authors qualitatively examine the experiences ten elementary education teacher candidates have with promoting student engagement during emergency response teaching because of the COVID-19 pandemic. An interpretive phenomenological analysis of 20 lesson reflections and supervisor observation notes reveals teacher candidates (TCs) need more support with questioning, feedback and formative assessment, and technology tools to keep students engaged when teaching at a distance. Recommendations suggest a need for teacher preparation programs to provide TCs with opportunities to practice engagement strategies in distance education settings.

Keywords: emergency remote teaching, student engagement, student interaction, teacher candidate, teacher preparation, pandemic

In March 2020, the COVID-19 pandemic led to social distancing and nationwide school closure. As a result, emergency remote teaching (ERT) ensued, marking a temporary shift of instruction to an alternate mode of delivery due to the crisis circumstances (Hodges et al., 2020). While widespread use of ERT appears to be a consequence of the COVID-19 pandemic, distance education (DE), an organized instructional program in which teachers and learners are physically separated (Keegan, 1980), is a pre-pandemic phenomenon. For example, the states of Michigan, Alabama, New Mexico, and Idaho passed legislation nearly a decade ago requiring that all K-12 students complete distance learning experiences before graduating from high school (Kennedy & Archambault, 2012). In addition, most states in the United States (US) offer free virtual schooling alternatives for students who cannot attend in person (Littlefield, 2020). However, only 1.3 % of teacher preparation programs (TPPs) in the US address DE in teacher preparation coursework (Barbour et al., 2014).

While ERT is often used synonymously with the terms DE or distance learning (students learning at a distance), they describe different settings. The primary objective of ERT is to provide students with *temporary* access to instruction, while DE aims to provide students with educational content and interaction for a designated period (Hodges et al., 2020). Additionally, DE requires that instructors prepare, plan, and design instruction well in advance of enactment, while ERT marks a quick, unplanned transition of instruction to an alternative mode of delivery. During the pandemic, sudden shifts to ERT led to stigmas about DE as lower quality and efficacy than face-to-face instruction. However, studies have shown no significant difference in learning outcomes between face-to-face and DE (Zhao et al., 2005).

As the nation continues to grapple with the COVID-19 pandemic, higher education institutions are shifting courses entirely online or partially online (hybrid) for the unforeseeable future. While the spring 2020 semester utilized ERT because instructors transitioned to online instruction haphazardly mid-semester, the fall 2020 semester, instructors had time to prepare for online course content to deliver DE. Nevertheless, the transition from ERT to intentional, well-planned DE did not trickle down to Hawaiʻi's public-school sector (Lee, 2020; Hawaiʻi Department of Education, 2021). Hawaiʻi public schools continue to use ERT due to increases in the number of positive COVID-19 cases and concerns about the recent Delta variant.

In the fall 2020 semester, we (two university field supervisors) transitioned a face-to-face field experience course to DE. Ten undergraduate, third-semester elementary education teacher candidates (TCs) worked with mentor teachers to provide online synchronous ERT to elementary (K-5) students. Even though TCs had two previous semesters of face-to-face K-5 classroom instruction, distance learning was a new instructional format. Throughout the fall 2020 semester, TCs met with us to complete course assignments to reflect on their ERT experiences. At this time, we noticed that TCs overwhelmingly perceived difficulties with promoting online student engagement. To support TCs' pedagogical needs, we merged tenets of practitioner inquiry with situated learning to guide formal research design.

This research seeks to fill a gap in the literature on TCs' experiences with ERT to inform TPPs on the skills TCs need to prepare for teaching online during a global crisis. This phenomenology seeks to investigate the following research question: What are undergraduate TCs' experiences promoting elementary student engagement during ERT?

Conceptual Framework

Practitioner inquiry is the systematic study of an educational problem or experience where the practitioner is the researcher. The professional context is the research site, and the practice itself is the focus of the study (Dana & Yendol-Hoppey, 2019). To inquire about teaching and learning, practitioners analyze instructional experiences to identify and explicitly work on questions that matter most to students. Practitioner inquiry aims to develop alternative ways to understand, assess, and improve teaching and learning so students benefit. Through collaboration, practitioners pose questions and gather data to become students of teaching. Two or more teachers work together to examine personal assumptions and collect and analyze data to develop local knowledge.

Situated learning theory (Lave & Wenger, 1991) proposes that learning is inseparable from real-world activity. In a situated learning context, one engages with or experiences an authentic activity. Authentic activities are real-life situations that involve cognitive apprenticeship, where an expert models a concept or skill to a learner, then slowly releases learner support so the learner may demonstrate acquisition of knowledge. A cognitive apprenticeship occurs when a TC works with a mentor teacher. Situated learning occurs because there is a transfer of knowledge from mentor to mentee (Catalano, 2015). The TC changes due to experiences within the classroom and can act to affect and modify the classroom. Thus, the complexities of learning lie not solely within the TC but in the complex dynamics of the TC-classroom interaction.

Literature Review

At the onset of the pandemic, survey research investigated school ERT readiness and the challenges perceived in education, exposing that teachers felt overwhelmed with online learning resources and the number of online tools available (Alea et al., 2020; Huber & Helm, 2020). Teachers also reported challenges with students' poor internet connections and students' overall lack of preparation for ERT (Trust & Whalen, 2020). However, before the pandemic, scholars (Foulger et al., 2017; Lai, 2017) shed light on students' and educators' lack of preparation and competency for DE, calling for technology-infused programs to address teaching with technology throughout the curriculum. However, programs such as TPPs and school districts must make several considerations before implementing quality DE.

First, educators need time to adapt to new technologies before being expected to use them effectively. For example, Teachers' Technological Pedagogical Content Knowledge (TPACK) emphasizes that it is essential for teachers to use (a) technological knowledge (TK), (b) pedagogical knowledge (PK), and (c) content knowledge (CK) to teach students online effectively (Koehler & Mishra 2009). All three components of TPACK work together to make distance learning successful. For example, a teacher may have a keen understanding of content (CK) and can maintain online student behavior and engagement (PK) but does not understand how to properly use the online software to disseminate a lesson to students (TK). TPACK emphasizes the binding relationship between technology, content, and pedagogy as the key to an online teacher's success. Teachers may use TPACK to reflect on the three components of their lesson (CK, PK, and TK) and analyze where improvement is needed. In addition, schools may use TPACK to guide teacher professional development where teachers join a professional development group according to their needs in CK, PK, or TK.

Second, educators need to be provided with unstructured professional developments (such as mentoring or online forums) to explore learner-centered activities that will help them teach *with* technology (Trust & Whalen, 2020; Zweig & Strafford, 2016). Teachers who feel comfortable and competent in the technology tools include more technology for student use in their instructional practices and are more prone to adopt technological advancements in their instruction (Ertmer, 1999). Teachers need tech support available to them when they need it to resolve technology issues immediately. Additionally, teachers need to engage with colleagues in a community of practice. DE educators often feel lonely and isolated from a lack of interaction with teaching peers and the absence of real-time feedback (Zhang, 2020). An online or face-to-face community space mitigates teacher's feelings of isolation, so they may collaborate, plan instruction, and discuss challenges they are facing (Kear et al., 2012).

Third, educators need fluid communication skills. Even though popular opinion proposes that teachers can switch instruction mediums and just "jump right in", this is not the case (Davis & Roblyer, 2014). Teacher involvement is the most defining difference between DE and face-to-face education. In the face-to-face setting, the teacher delivers content live to students and can interact with students inside and outside the classroom. But, in DE, the level of teacher involvement varies greatly depending on the program used to teach, the size of the online classroom, and if the teacher has the time to interact with students independently once content is delivered (Zhao et al., 2005). DE educators need to know when they need to interact with a small group of students versus giving whole group lectures and need to have the communication skills required for both learning contexts.

Lastly, teachers need to know how to engage students with technology so students stay interested while learning about a given skill or concept. As noted by Lai (2017), a "supportive online learning environment entails teachers using effective pedagogical practices to support their students and develop a positive teacher-student relationship to foster learner motivation and engagement" (pp. 322–323). Teachers need to design DE activities that (a) provide students with flexibility and autonomy, (b) allow for students to exhibit skill, concept and subject competence, and (c) relate to students' interests and learning needs (Stroet et al., 2013). Students achieve autonomy and flexibility in DE environments when teachers give students agency (choice in deciding on the technological tools they will use to complete course assignments). Student competence occurs when there is a straightforward course structure where instructors provide constructive, encouraging, and guiding feedback rather than evaluative feedback.

Student Engagement and Interaction

Student attitude, classroom climate, motivation, and self-regulated learning conceptualize student engagement (Fredricks, 2011). In a face-to-face instructional setting, engagement includes behavioral, emotional, and cognitive factors (Fredricks, 2011; Wang & Eccles, 2013). However, DE requires a different conceptualization of engagement since the learner has fewer opportunities to engage with the instructor (Martin & Bolliger, 2018). DE student engagement provides incentives to motivate student participation, interaction with teachers, peers, and course material (Al-Freih, 2021).

In DE literature, student engagement is students' interaction with the online classroom environment (Anderson, 2003). Others (Wagner, 1994) provide a more technical description, describing DE student interaction as a "reciprocal event that requires at least two objects and two actions…[that] mutually influence one another" (p.8). Other literature identifies three DE interaction types: student-content (SC), student-teacher (ST), and student-student (SS)

(Bernard et al., 2009; Moore, 1989). SS interaction refers to interaction among individuals or students working in small groups and is the more desirable interaction type for offering students cognitive and motivational support (Anderson et al., 2000). ST interaction focuses on the classroom-based dialogue between student and teacher where the teacher motivates the student to learn or seeks to stimulate student interest (Moore, 1989). Finally, SC interactions develop students' mental and physical skills by providing opportunities for students to connect with the subject matter under study. Some examples of SC interaction include reading informational texts, watching videos, or using simulations.

Researchers may use Moore's (1989) three interaction types to identify DE student interaction types. However, Anderson (2003) suggests that as long as a distance educator utilizes one of Moore's interaction types "at a high level" (p.4), the other interaction types are not essential. Nevertheless, Anderson does not describe how to determine if student interaction occurs with high-level fidelity. Others (Martin & Bollinger, 2018) underscore the importance of the instructor's presence in promoting students' DE interactions, arguing that it is not the type of interaction that matters but how the instructor provides the interaction type.

Gaps in the Literature
Educational technology research reports on the benefits that student engagement and interaction have on student outcomes (Al-Freih, 2021; Lear et al., 2010), describes DE interaction types (Anderson, 2003; Moore, 1989) and the skills teachers need to be effective DE educators (Zhao et al., 2005). However, most literature reports on higher education contexts where DE educators enact instruction for adult learners. In addition, educational technology literature on DE in K-12 teaching and learning contexts is limited. This research has the potential to inform TPPs on the skills TCs need to be effective DE educators. Therefore, this study seeks to fill a gap in the literature and investigate undergraduate TCs' experiences promoting elementary DE student engagement.

Methods

Phenomenology investigates the commonality of a lived experience within a particular group. The purpose is to describe the universal essence of individuals' experiences with a phenomenon (Moustakas, 1994). Classic phenomenology focuses on first-person experiences and intentionality (direction of experience towards things in the world) and aims to understand how established ways of seeing are brought into being. Understanding the researchers' presuppositions of the phenomenon is a central feature of phenomenological research. *Epoché* or bracketing (Moustakas, 1994) is done with memos or reflexivity (Rodham et al., 2015). To ensure trustworthiness in phenomenological research, the researchers need to develop a curious stance towards the data. Bracketing requires that researchers engage in reflexivity to become mindful of their biases and personal experiences on the research to self-monitor the impact of their role in creating knowledge.

Statement of Reflexivity
The first author is an Assistant Professor in multilingual learning, elementary education. Her beliefs about student engagement and distance learning align with sociocultural concepts of learning and come from her personal experiences growing up as a bilingual and her professional experiences working as a former public elementary school teacher and now a university professor. She believes tools mediate learning and that humans make sense of the world through their interactions with others. The first author is knowledgeable in preparing TCs to design and enact instruction for multilingual students or those who speak a language

other than English as a first language. The first author also assumes it is easier to teach in person than it is to teach virtually.

The second author is supervising TCs in the field and works as a lecturer in education. A former elementary and secondary teacher, she developed an immersive language program and engaged her students in numerous art projects. Her teaching philosophy is grounded in social constructivism while providing students a sense of self-efficacy and agency. COVID-19 required a transfer to distance learning and the second author explored synchronous and asynchronous teaching formats. The second author believes that teaching in a distance learning environment requires educators to adapt to new modes of instruction, student participation, and engagement.

Research Context

The TPP uses a cohort model and is a four-semester long program that results in an undergraduate degree in elementary education with initial teacher licensure. TCs begin the TPP in their junior year of college and complete four semesters of field experiences and methods course instruction. A cohort coordinator assigns TCs to an elementary school and mentor teacher. Semesters one through three include two days of field experience and methods course instruction. Semester four includes full-time student teaching. In addition, a university field supervisor observes TCs in the field and teaches bi-monthly seminars. Seminars provide opportunities for TCs to discuss field experience events, review relevant theory, receive lesson plan support, engage in reflective practice, and practice instructional strategies.

On March 13. 2020, nationwide lockdown ensued. Face-to-face instruction in the spring 2020 semester abruptly transitioned to ERT. Prior to the pandemic, TCs worked with a mentor teacher two days per week to provide face-to-face instruction to K-5 students. When the pandemic hit the US, TCs were in the midst of the second semester field experience. Mentor teachers and TCs transitioned K-5 instruction to ERT with no preparation in DE.

At the same time, universities worked to accommodate the quick escalation of ERT. TPP instructors referred to empirical research on online field experiences. According to the literature (Hixon & So, 2009), there are three types of online field experiences. *Type I* is characterized by concrete, direct experiences where the TC works in a live classroom setting with a mentor teacher and students. In a Type I field experience, TCs interact face to face with students and mentor teachers. Technological tools, such as video conferencing, videotaping, and video analysis facilitate supervision, reflection, and communication. In *Type II* virtually enhanced field experiences, TCs observe students and teachers in classrooms remotely through video conferencing software such as *Zoom*, *Google Meets*, and *WebEx*. Examples of Type II field experiences are synchronous lesson observations or non-real-time pre-recorded videos. Simulated environments create Type III virtually-enhanced field experiences. In *Type III* "virtual practicums," TCs learn about and practice pedagogy using artificial reality, such as publicly available video-recorded lessons or via teaching channels. The different types of online field experiences may be used in conjunction with one another. For example, TCs may remotely observe a classroom (Type II experience) for an assignment while working in direct (Type I) field experience. The TCs reported on in this research participated in Type II field experiences because they worked with mentor teachers and students to enact instruction at a distance. Likewise, all collaboration and dialogue between mentors, students, and university supervisors took place online.

Participants
The research took place when TCs were in the third semester of the TPP. At the start of the fall 2020 semester, instruction remained online. However, because of the pandemic, TCs were allowed to choose one of three pathways to complete the third-semester (spring 2021) field experience requirement: (1) work face-to-face with a mentor teacher, (2) work online with a mentor teacher, or (3) complete field simulation tasks provided by the field supervisor with no mentor teacher assignment. As a result, 10 of 18 TCs (56%) chose to work with a mentor teacher, either face-to-face or remotely, and are reported on in this research because they planned and enacted ERT for students.

The ten TCs reported on in this study completed two formal observations that included a lesson pre-conference, formal observation, and post-conference. To accommodate online instruction, field supervisors (the authors) joined TCs' live online lessons or watched a recording of TCs' lessons. TCs used the university's lesson plan template to plan online instruction and chose a Charlotte Danielson Framework (CDF) (Danielson, 2013) domain as a professional development goal for their lesson. The public school system used the CDF for in-service teacher evaluation. The TPP used the CDF to develop TCs' fluency in CDF language for professional development . For instance, TCs shared their lesson plan with their field supervisor, using CDF language to establish a goal (i.e., I want to create a culture for learning). Then the field supervisor used TC's CDF goal to provide lesson plan suggestions in pre-conference meetings. TCs were required to record their lesson (even if the field supervisor attended their live instruction online) and analyze their video using a video reflection framework (Smith, 2019). To culminate the formal observation assignment, TCs used the video reflection framework to guide post-conference reflective dialogue with the field supervisor.

Data Collection
Data was collected over a 16-week semester of online instruction in fall 2020. Data included 20 TC lesson reflections (two per TC). TCs completed written reflection prompts on their enacted DE lessons. TCs recorded ERT using the *Screen-Cast-o-Matic* (a web-based screen recording tool), then reflected on their audio-video recording using a free video annotation tool (v-note.org). Written reflection prompts asked TCs to comment on how their DE met or did not meet a personal pedagogical goal. TCs referred to the CDF (Danielson, 2013) to select a pedagogical goal. Before watching and analyzing their video, TCs decided what instructional elements would evidence them having met or not having met this goal. Secondary data sources included university supervisor notes (n=40). We (the authors and university field supervisors) took field notes when meeting with TCs in post-lesson conferences. During post-lesson conferences, TCs read excerpts from their written reflections to us, described how they analyzed their video recording, and played segments of their recording to exemplify what they noticed about their instruction and how it related to their CDF goal.

Explicitation of the Data
Phenomenology uses the term "explicitation" instead of "analysis" because when we analyze we break data into smaller discernable parts instead of keeping it whole (Groenwald, 2004). We used Interpretative Phenomenological Analysis (IPA) to explore TCs' experiences with promoting elementary student engagement during ERT. IPA involves a light form of thematic analysis where the data are kept intact through a process of phenomenological reduction or bracketing so a phenomenon may become evident (Smith & Osborn, 2015). While IPA is a popular analysis approach, it is essential to note that a researcher's values, perceptions inevitably influence the process of understanding someone else's life or experience, and biases, a process known as "double hermeneutic" (double interpretation) because the researcher is

trying to make sense of the participant trying to make sense of their own experience (Rodham et al., 2015). To address IPA methodological issues, we referenced personal interpretive resources throughout the entire explicitation process. In addition, we read our statements of reflexivity before reading the data and took memos as we read the data to "bracket" prior experiences from coloring our interpretations of the data to ensure trustworthiness.

Data were analyzed in three stages: initial note-taking, transferring notes into themes, and connecting themes to generate findings. During initial note-taking, we employed a free analysis approach (Smith & Osborn, 2015) to explore TCs' experiences with promoting online student engagement. To do so, we opened TCs' lesson reflections on *Google Docs* and created a three-column table (listing initial notes, data excerpts, and themes). We independently reviewed lesson reflections applying *In Vivo* (Saldaña, 2021) codes to the left-hand column to capture participants' own words. We used the comment tool on Google Docs to take memos to document our emotions, interpretations, and thoughts about the data to bracket personal biases as we took initial notes.

In stage two, we met to discuss our In Vivo codes using an idiographic analytical approach (Grbich, 2013) to transfer notes into themes. This allowed us to focus on the unique experiences of each participant prior to moving towards general claims. Our conversation resulted in three themes: "questioning", "formative assessment", and "technology" (Figure 1). At this time, we noticed that data within each theme contained the following chronological pattern: the participant describes an engagement strategy, the participant reveals their beliefs about the strategy, the participant shares the challenges they encountered enacting the engagement strategy, the participant considers a plan of action for improvement. Seeing this pattern, we chose to add the following subthemes: "beliefs", "challenges", "plans" to our codebook.
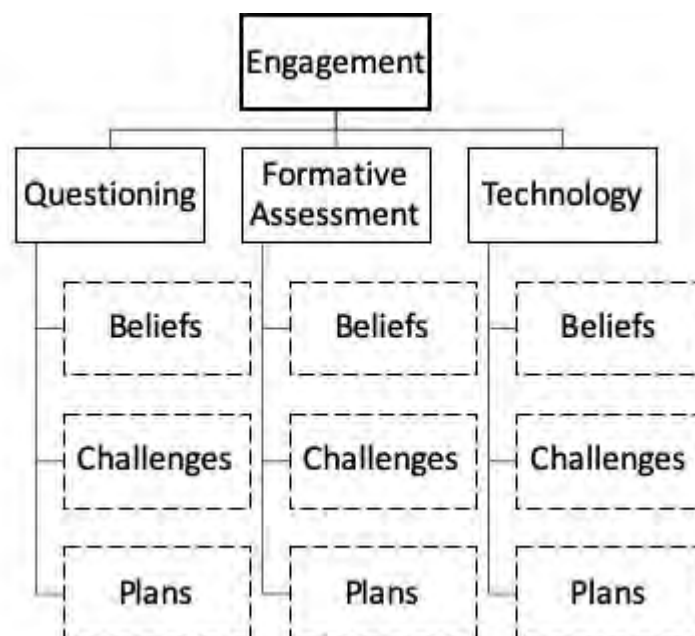

Figure 1: Transferring notes into themes.

In stage three, we looked for patterns across themes and subthemes to generate findings. First, we used the themes and subthemes to independently re-code reflections. Then we met to discuss our coding, noting similarities and differences for inter-rater reliability. When we encountered differences, we turned to our observation notes for clarification. In three instances, our observation notes were not enough to reconcile our coding discrepancies, so we phoned

participants for member-checking (Lincoln & Guba, 1984). We took notes as participants clarified their experiences then connected themes and subthemes to represent findings. We continued this process until 100% inter-rater reliability was achieved and used the themes: questioning, formative assessment, and technology to report on TCs experiences with student engagement in ERT.

Findings

This study explored TCs experiences with student engagement in ERT. To understand TCs' experiences with ERT as a phenomenon, we examined the engagement strategies TCs utilized, the beliefs TCs had about the strategies they used for student engagement, challenges TCs perceived, and any plan of action for subsequent instruction.

Questioning

The questioning theme involved instances where TCs relied on question-response student-teacher (ST) interactions. TCs used questioning to promote student engagement and added rigor to online lessons as a way to invite students to think critically. For example, one TC explained, "*[Students] had the most attention when I asked them questions. They could even regain their focus if I asked them to answer a question or give me an answer to a problem*" (TC, September 2020).

Another TC shared, *"I should have worked with a small group of struggling students so that they could ask clarifying questions and get help with some of the workbook questions."* (TC, September 2020). Overall, TCs expressed the belief that questions were an essential engagement strategy that teachers should use to keep students on task as a way to help "struggling" students receive content support.

TCs combined strategies they learned about in their methods courses with questioning. TCs used think-aloud and open-ended questions such as: "*What should I do now? Can you help me*?" along with Total Participation Techniques (TPTs) such as "think-pair-share" and "thumbs-up" an attempt to keep students engaged online.

TCs noticed TPTs did not work in the online setting with the same tenacity as the face-to-face setting. This was largely due to the fact that TCs did not use breakout rooms and relied on whole group question-response. One TC explained, "*I model how to solve the problems then give them [students] time to practice on their own, but it's hard to create the "pair" time online. I know I should do breakout rooms, but I don't think I can do this on WebEx* [distance learning software used by the school]" (TC, September 2020).

TCs revealed they needed to reconceptualize the participation strategies they learned about in their methods classes to "fit" the online platform they were using. The reconceptualization involved considerations about how to support student engagement online and thinking about how the features and limitiations of the online leanring platforms (Webex; Google classroom) affected instructional intentions. TCs shared feelings of being un-prepared and unsure of their teaching competency, evidencing a lack of technological knowledge (TK) in the TPACK framework. As one TC shared, "*I know I have to get better at teaching online. I don't feel confident anymore* (TC, October 2020)."

TCs expressed strong desires to improve on the types of questions they used to promote online student engagement. One TC summed it up, "*I should have added more variety to my questions.*

In this way, I could introduce new vocabulary and expose students to different styles of questioning" (TC, December 2020). As TCs taught online, live video feed of K-5 students, provided evidence of student disengagement; this evidence prompted TCs to see a need for improvement. As one TC expressed, "*I can see them doing other things as I'm speaking, so I know I need to improve on how I ask them questions to keep them interested in the lesson*" (TC, November 2020).

An overall feeling of improving questioning techniques via online tools that could promote SS interactions was expressed by all TCs. For example, TCs shared a desire to use breakout rooms to engage students in collaborative discussions, while four TCs shared they wanted to use the chat feature to keep track of student responses.

Feedback and Formative Assessment
TCs used formative assessment in the form of feedback to promote online student engagement. Praise such as "*thank you*" or "*good job*" kept students interested in a lesson. However, TCs noted that praise was not enough to develop online student discussions for critical thinking. For instance, one TC stated: "*I'd like to take the comments my students make and have them elaborate or turn their comments into a discussion. Instead of saying a mere thank you, I'd like my feedback to become more detailed*" (TC, November 2020). TCs expressed that they used ST interaction and wanted to move towards student-to-student (SS) interaction. A noteworthy finding that may mean that TCs learn how to facilitate SS interaction online once TK and PK are acquired.

In other instances, TCs shared beliefs about the role the teacher has in facilitating SS interactions and their lack of TK to do so. For instance, TCs analyzed students' independent work samples to keep track of student progress and understanding. A TC shared, "*I use practice problems to see what students know how to do before I move on*" (TC, October 2020). However, when completing practice problems online, TCs noted that they did most of the talking and shared that they needed to learn how to facilitate students sharing their work online.

A TC explained, "*It's hard for me to create a way for students to work together in small groups online. It's always a whole group with me doing most of the talking. I know I need to change this*" (TC, November 2020).

Formative assessment became challenging for TCs to implement online: "*I created a rubric to use to check off when students complete a specific task, but I cannot see each student individually, so I observe a few students at a time; usually the ones I know are struggling*" (TC, October 2020). The distance learning environment challenged TCs in keeping track of student progress during instruction. While some TCs used online games like *Kahoot*! to formatively assess students, TCs noticed they needed to rethink formative assessment in their lessons to consider the use of technology as an instructional tool. As one TC shared, "*I can't walk around to check on the progress anymore and offer support*" (TC, October 2020). TCs' experiences revealed that while they wanted to use technology to support all students, they were only able to help students who were vocal about their learning needs.

Technology
Respective schools provided video conferencing apps such as WebEx or Google Me*et* as distance learning platforms. TCs frequently used the chat feature and camera features to keep track of student engagement in the form of verbal responses and facial gestures. Other candidates relied on the Google Suite and used Google Slides to present lesson content with

animations (pictures and emojis on the slides). TCs felt confident using the Google suite for instruction. Still, they expressed issues with internet connectivity (the video freezing), visibility (not being able to see all students in a grid view), and multitasking (showing the Google Slides and teaching while also observing students). One TC expressed frustration, "*It's so hard to see all of the students when I'm teaching,*" "*I can't see everything on my one screen*" (TC, October 2020). Another TC voiced, "*I could not successfully explain to the students how to take a screenshot*" (TC, December 2020).

Feelings of frustration led TCs to notice the importance of practicing DE lessons in advance to detect and solve technical problems. TCs explicitly stated that they practiced distance learning lesson procedures at home "*with stuffed animals,*" "*with a sibling,*" or "*with a peer*" before they taught their lessons to students, albeit home practice did not mimic the reality of the virtual classroom. As one TC shared, "*I practice my lessons in advance, but on the day of my lesson, everything changed. I needed to keep 15-second graders engaged. This is something I can't practice at home*" (TC, December 2020). TCs expressed that they would like to improve their multitasking skills. Improvement plans included monitoring students via camera and chat through an additional screen or asking their mentor teacher what they do to multitask.

Discussion

The following research sought to investigate undergraduate TCs' experiences with promoting elementary student engagement during ERT. Findings reveal TCs focused on questioning, feedback and formative assessment, and technology to keep students engaged online.

When using questioning, TCs heavily relied on student-teacher (ST) interactions that only motivated some students to participate in the discussion. TCs noticed a need to create more student-to-student (SS) interactions. They began to consider breakout rooms or group chats but were missing the technological knowledge needed to enact these ideas. Even though scholars argued that ST interaction has the highest perceived value among students (Anderson, 2003; Martin & Bollinger, 2018), this research showed that SS interaction is critical when working at a distance. Agreeing with Lear et al. (2010), findings from this research support the notion of building interactivity and community online to promote student engagement and learning outcomes.

When it came to feedback and formative assessment, TCs relied on strategies learned in methods coursework that worked in the face-to-face setting (i.e., praise). However, when teaching synchronously at a distance, TCs noticed that they could not monitor students' work. TCs missed opportunities to provide "struggling" students with feedback because students were silent, not working, had their cameras off, or the TC did not notice the student was experiencing difficulty. TCs began to consider technological tools that could help them monitor student work (i.e., Jamboard) and use explicit feedback to promote students' cognitive engagement. Findings from this research reiterate the need for TPPs to reconceptualize teacher competency. Teacher competency should include a teacher's ability to teach at a distance. A suggestion is for TPPs to consider using the TPACK framework (Koehler & Mishra, 2009) to provide TCs with feedback when working in the field or as a TC self-assessment tool. With TPACK, TCs may learn the importance of demonstrating interactions between content, pedagogy, and technological bodies of knowledge.

The technology theme revealed TCs' lack of understanding of DE and the overall need for TK professional development. TCs shared that they needed to practice using technology more and

believed that they needed to learn how to "multitask" with multiple screens to see students while delivering content. While TCs demonstrated content (CK) and pedagogical (PK) knowledge, findings suggested that TCs struggled with applying PK and CK in DE due to a lack of TK. Teachers need to be able to use technology for student instruction when graduating from a TPP. An implication for the field is for TPPs to apply Lave's and Wenger's (1991) situated learning theory to provide TCs with ample situations to practice DE; this could include virtual simulations of a DE classroom. Davis and Roblyer (2005) recommended that TCs learn about DE while in a TPP. However, current frameworks used to evaluate TCs who are working in the field do not contain language about DE (Danielson, 2013). TPPs need to address the ways TCs teach with technology (Foulger et al., 2017) and should use teaching evaluation frameworks that address TCs' DE competence.

A limitation of this study is the sample size; therefore, we want to reiterate that findings from this study are made to provide a description only and should not be used to make general claims about other TCs. Additionally, because this research used a Type II online field experience where TCs did not have direct contact with us, their mentor teachers, or students, we acknowledge that TCs' experiences with teaching at a distance may have been different if intermittent face-to-face interactions were included. More research is needed to highlight how TCs may be prepared for distance learning and should consider larger sample sizes, and face-to-face interactions or online community-building spaces for mentor teachers, TCs, and university supervisors. Additionally, more empirical research is needed examine the connections between SS, and TK and PK to describe how TCs obtain TK and PK while in a TPP. More research is also needed on K-12 synchronous DE formats. A continuation of this study would be an examination of how TCs use SS interaction in DE to work with K-12 students.

Conclusion

This phenomenological study reports on TCs' experiences with promoting elementary student engagement during ERT. Findings report on TCs' use of questioning, feedback and formative assessment, and technology engagement strategies. Recommendations are made to support a need for DE evaluation tools in TPPs, along with the addition of explicit opportunities for TCs to teach at a distance.

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