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Transfer, Adaptation, and Loss in Practice-Based Teacher Education Amidst COVID-19

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ABSTRACT

The consequences and affordances of online teacher education remain understudied, even as it promises greater accessibility. The COVID-19-related pivot to emergency remote teaching offered a novel opportunity to study how practice-based teacher educators transitioned courses online. This multiple case study of six graduate student instructors examines the effects of transition on four pedagogies of practice-based teacher education. We discovered that 1) representations and 2) approximations of practice could be adapted with minimal disruption. However, 3) enactments could be transitioned only with loss and cascading effects that impacted 4) reflections on practice. These findings can promote teacher educators' awareness of how to create intentionally designed online practice-based teacher education courses.

Introduction

With the recent advent of non-traditional teacher education programs, including fully online programs (Carney, 2020), questions regarding consequences and affordances of online teacher education must be addressed. When the COVID-19 pandemic interrupted field experiences and forced countless teacher education courses online, it provided a novel opportunity to study how teacher educators transitioned their courses and field experiences online. The present study offers findings from an exploratory multiple case study (Yin, 2014) of six novice teacher educators who transitioned practice-based teacher education courses (PBTE) online in response to COVID-19.

There are four overarching pedagogies of PBTE: representations of practice, approximations of practice, enactment, and reflections on practice (Grossman, Hammerness, & McDonald, 2009; McDonald, Kazemi, & Kavanagh, 2013). We use this pedagogical language to describe how each educator in our study intended to enact these pedagogies within their courses and how each

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pedagogy was impacted by the transition to online instruction. Our findings suggest certain pedagogies, at least as they are implemented by novice online instructors (i.e., instructors with limited experience teaching online) under the conditions of emergency remote teaching (ERT; Hodges, Moore, Lockee, Trust, & Bond, 2020), can be successfully adapted for online teaching. Other pedagogies, however, were nearly impossible to implement online. Although we acknowledge the limitations of studying online teacher education within the context of ERT, we argue these experiences can inform how teacher educators reimagine PBTE for online instruction.

Practice-Based teacher education

In recent decades, teacher education programs have shifted toward a practice-based approach that embeds teacher education within the actual work of teaching, aiming to close the gap between theory and practice (Darling-Hammond, Hammerness, Grossman, Rust, & Shulman, 2005; Ball & Cohen, 1999). A PBTE preparation program foregrounds the critical activities and "ways of thinking that are fundamental to the practice" (Grossman & Cohen, 1999, p. 12). PBTE focuses less on what preservice teachers (PSTs) *know* (theoretical knowledge) and more on how they *enact* that knowledge through teaching. The end goal of PBTE is teachers who are prepared for highly improvisational, student-centered teaching (Forzani, 2014; McDonald et al., 2013). In the next section, we detail the pedagogies found in the literature to support PBTE.

Pedagogies for teaching about practices

PBTE and related professional learning literature capture specific pedagogies that support the unpacking and adoption of teaching practices. Grossman et al. (2009) present a framework for professional practice organized around the representation, decomposition, and approximation of practices. McDonald et al.'s (2013) learning cycle framework contributes pedagogies of enactment and analysis of enactment through reflection. Together these frameworks provide a common language that describes the pedagogies used to engage PSTs in different aspects of teaching practices.

Teacher educators begin by introducing a practice using representations. Representations are explicit examples of the practice in action, such as videos, vignettes, case studies, and modeling by the teacher educator, each of which support PSTs in developing an image of the practice (Darling-Hammond et al., 2005; Grossman et al., 2009). When engaging with representations of practice, teacher educators also support PSTs in decomposing the practice – breaking down complex practices into smaller components (Grossman et al., 2009). For example, the larger practice of leading a whole-class mathematics discussion can be

decomposed into five components: anticipating, monitoring, selecting, sequencing, and connecting (Smith, Hughes, Engle, & Stein, 2009); each of which can be examined and practiced independently and then integrated together.

Once PSTs have been introduced to a practice, they engage in approximations including rehearsing or role playing, teaching with avatars (computer simulations of students inside classrooms), teaching a small group of students, and lesson planning (Grossman et al., 2009, 2009). Approximations simulate the practice along a continuum of less authentic to more authentic, with more authentic approximations being closer to the actual teaching practice performed by teachers in classrooms (Grossman et al., 2009). Less authentic approximations simplify the complexity of the task, focus PSTs' attention to fewer components of practice, and reduce variables that are out of PSTs' control. As PSTs gain mastery of practice components through representations, approximations, and reflections (as described below), they can engage in more authentic approximations, ultimately leading to enactment of the practice. Typically, enactment is when PSTs teach all or a portion of a lesson to K-12 students as a component of coursework (McDonald et al., 2013).

Lastly, reflections on practice invite PSTs to critically analyze practice for the purpose of supporting their learning from practice (McDonald et al., 2013). After enacting a lesson or engaging in approximations of practice, PSTs may debrief with teacher educators or peers. Revising lesson plans after engaging in approximations, prior to enacting the same lesson with K-12 students is also a reflective practice. Additionally, reflecting with peers, including both receiving feedback on one's own enactment and observing the enactments of others, can enhance PSTs' learning about practice (Wetzel, Hoffman, Roach, & Russell, 2018). For example, Juzwik et al. (2012) found reflection with peers exposed PSTs to a variety of enactments and allowed them to gain understandings of how to enact theories of teaching and learning flexibly across classroom contexts and in response to students' needs.

Essential to PBTE and the pedagogies described are repeated opportunities for PSTs' to engage with practices of teaching including analyzing, approximating, enacting, and reflecting on essential aspects of teaching (Darling-Hammond et al., 2005; Grossman et al., 2009). Gainsburg (2012) found novice teachers were hesitant to engage in teaching practices they had not first rehearsed in low-risk settings as PSTs. Thus, repeated opportunities to engage in teaching practices may be essential for PSTs to construct a professional identity that guides their teaching (Grossman et al., 2009).

Online teacher education

In recent years, given both society's reliance on technology as well as a persistent teacher shortage, there has been increasing interest in online teacher education (Carney, 2020; Dyment & Downing, 2020). This interest

has led to a growing body of literature characterizing online teacher education, presenting results of empirical studies questioning the impact – both affordances and losses – when teacher candidates participate in online teacher education courses, and literature reviews that synthesize the findings of these studies.

For example, Dyment and Downing (2020) conducted a systematic literature review to investigate the affordances of synchronous and asynchronous pedagogical innovations in initial teacher education (i.e., coursework prior to practicum experiences). Despite amassing 492 articles of research on online teacher education, Dyment and Downing (2020) found the literature was fragmented and disconnected. This fragmented base leads to a lack of understanding of how teacher educators transition to online teaching and specifically, how traditionally face-to-face courses can be taught online (Dyment & Downing, 2020).

In response to the COVID-19 pandemic, universities pivoted teacher education to online classrooms resulting in an emergence of literature about *how* teacher educators responded to the shift to ERT (e.g., Donitsa-Schmidt & Ramot, 2020; Moorhouse, 2020). While much of this literature focuses on technological responses to ERT, Kidd and Murray (2020) attended to teacher educators' pedagogical responses as they adapted to online instruction. The authors interviewed 11 teacher educators with a range of experience (one year to over 10 years) to explore challenges faced when transitioning face-to-face courses online. Teacher educators communicated a sense of loss around not being able to model teaching practices (a representation of practice) and reverted to lecturing to develop PSTs' knowledge about practices, as opposed to having PSTs engage in practice. Despite challenges in adapting PBTE during ERT, some teacher educators found online instruction to be a source "of innovation and agility" (p. 549) and leveraged new technologies to prepare PSTs for their future classrooms.

Some post-COVID-19 studies describe pedagogical agility through, for instance, the adoption of virtual reality technology to replace the in-person classroom with a simulated classroom populated by avatars of students (Sasaki et al., 2020) or the implementation of virtual practice, reflection, and feedback cycles so PSTs might continue refining their teaching practice (Keefe, 2020). Nevertheless, doubt remains about the adequacy of pedagogical agility to replicate the "natural environment" (i.e., the in-person in a classroom, Alan, Biçer, & Can, 2020, p. 1979) and thus prepare future teachers for teaching in person. This perceived inadequacy left some teacher educators and PSTs with fears of "a sub-standard [emergency] practicum" (Vancell, 2021, p. 4) that had consequences for their feelings of preparedness to function as teachers in traditional classrooms. Specifically, PSTs indicated they lacked self-confidence, in particular about acting as pedagogical problem-solvers (Hoppey, Mills, Reed, & Collinsworth, 2021) and

classroom managers (Vancell, 2021). Still other PSTs reported difficulties learning how to facilitate small group instruction because online instruction "required a new approach to creating lessons and engaging students" (Jones, Durham, & Cataneo, 2021, p. 15) that was inconsistent with in-person teaching.

Thus, even if teacher educators demonstrated pedagogical innovation during ERT, many are still left with the question of whether an authentic enactment of practice that replicates authentic teaching practice can take place online. Our study builds on this literature by capturing how novice teacher educators adapted PBTE pedagogies as they quickly transitioned face-to-face courses online and what the perceived effects of this transition were.

Method

This multiple case study (Yin, 2014) of six graduate student instructors (GSIs; doctoral students assigned as instructors of record) at a large Mid-Atlantic university is part of a larger study that examined how GSIs, all of whom were novice online teachers, navigated the transition to online instruction mid-semester. Study participants were a convenience sample from the School of Education. We focus on six participants who were: 1) instructors of record in Spring 2020, 2) had moved their course online, and 3) utilized practice-based pedagogies in their courses. All courses were initially taught face-to-face but transitioned to fully online mid-semester when the university pivoted to ERT. Information related to GSIs courses and their prior teaching experience is presented in Table 1.

Data sources

Data collection began in April 2020, following ethics board approval. First, an online survey was sent to all GSIs at the university's School of Education. This survey consisted of Likert-type and open-ended questions that solicited information regarding GSIs' courses, their pedagogical approaches, resources they were utilizing while teaching online, and their feelings regarding online instruction. Our survey and the subsequent semi-structured interview protocols were based on the Mid Semester Evaluation of College Teaching-Online, a validated instruction feedback and evaluation tool (Byrne & Donlan, 2020).

From these surveys, GSIs who met our inclusion criteria were invited to participate in interviews and a focus group, which were conducted via Zoom. Initial interviews and focus groups were conducted approximately 1 month after the start of ERT, while the second interview was completed in Fall 2020, after GSIs received course evaluations. Two members of the research team conducted each interview and focus group. Interviews and focus groups were semi-structured and designed to explore what instruction looked like before

Table 1. Participants and course information.

Participant name and doctoral program	Course description	Course enroll-ment	Original class meeting time	ERT modality of instruction	Planned enactment with K-12 students	Prior K-12 teaching experience	Number of prior semesters teaching in higher ed	Experience teaching this course before	Experience teaching online before
Jules Literacy education	3-credit reading methods course on youth literature and literacy, required course for elementary education majors	19	Twice a week for 1 hour 15 minutes each	One session synchronous, the other asynchronous	No	2 years high school teaching	10 semesters as teaching assistant (TA) and instructor of record	Yes	No
Logan Math education	1-credit science and math methods course, required for secondary education majors, but also can be general education elective	25	Once a week for 1 hour 20 minutes	Asynchronous with 3 synchronous, small group discussions	1 demonstration lesson in elementary school	6 years high school math	1 semester as instructor of record	Yes	No
Morgan Applied linguistics	2-credit course on teaching linguistically diverse students that blends special education and literacy	5	Once a week for 1 hour 15 minutes	Fully asynchronous	No	None	10 semesters as TA and instructor of record	No	Yes – asynchronous course
Parker Applied linguistics	3-credit methods course on teaching English language learners, required for TESOL minor	11	Twice a week for 1 hour 15 minutes each	Synchronous	No	3.5 years elementary English language learners	1 semester as instructor of record, 1 semester as TA	No	Yes – TA for an asynchronous course
Participant name and doctoral program	Course description	Course enrollment	Original class meeting time	ERT modality of instruction	Planned enactment with K-12 students	Prior K-12 teaching experience	Number of prior semesters teaching in higher ed	Experience teachingthis course before	Experience teaching online before
Ryan Literacy education	3-credit literacy methods course, required course for elementary education majors	23	Once a week for 2 hours 45 minutes	Fully synchronous	2-week, full- time field placement in elementary classroom	4 years kindergarten	6 semesters as instructor of record	Yes	No
Taylor Special education	3-credit special education literacy methods course, required course for special education majors	9	Once a week for 2 hours 45 minutes	Asynchronous with 2 synchronous mock tutoring sessions (PSTs role- played tutees)	Weekly tutoring session in elementary school	4 years high school special education	4 semesters as TA and instructor of record	No	No

and after the move online and GSIs' experiences with online instruction. Spring interview questions included *how is your teaching different? how is it the same? how have you had to modify/adapt assignments?* Interview questions from the Fall included opportunities to reflect on student feedback. For example, *looking back on your experience and student feedback, tell us briefly about how you provided direct instruction? facilitated students' reflection on their own learning?* This interview also asked participants to reflect on their experience teaching online with questions like: *what resources and supports for teaching online do you wish you had? and how did the spring ERT experience influence your teaching overall*? All interviews and focus groups were audio recorded and transcribed. Transcripts were manually checked for accuracy.

Data analysis

In fitting with multiple case study design, we explored each participant's experiences individually and compared findings across cases to look for patterns of experiences (Yin, 2014). We first formed cases for each GSI. Each case consisted of transcripts from the two interviews and the relevant focus group. We coded each case using inductive and deductive codes. Inductive codes included PBTE pedagogies of *representations of practices, approximations of practice, enactment, reflection*. For each pedagogy we examined how GSIs initially intended to implement practices in their course prior to ERT as well as how they addressed practices after switching to online learning. Within each pedagogy, we used deductive codes to add nuance to inductive codes. We looked at which practices were transferred online with minimal adaptations, which practices GSIs adapted to fit the new context, which practices were no longer enacted, and finally, GSIs' feelings regarding their adaptations including perceived sense of loss.

The first three authors developed a codebook, which we used to code two randomly selected interviews. We then discussed our coding and refined our codebook. Once we reached agreement on the dimensions of each code, we double coded each transcript. Finally, we met again to rectify coding and create a single spreadsheet with codes for each GSI.

Establishing trustworthiness

At the time of data collection, all participants were currently enrolled in doctoral programs within the same college of education. Although it is possible these preexisting relationships with participants impacted participant responses (e.g., by increasing participants' desire to be "good informants" or through social desirability bias), we believe there is little evidence of bias in participants' responses and in our conclusions. For example, participants either had established rapport with the research team or appeared to establish it easily in interviews or focus groups. This rapport diminished the likelihood of social

desirability bias (Bergen & Labonté, 2020). Furthermore, we attempted to mitigate any possible risk by guaranteeing confidentiality and by ensuring interview and focus group questions had no obvious "correct" answers as well as by not sharing our research questions with participants. Instead, **we** asked for personal reflections on teaching experiences. Additionally, we sought to increase trustworthiness of findings by looking for consistency in responses across each data source (Yin, 2014). We also corroborated findings across data sources to ensure themes reflected patterns of participant experiences as well as notable exceptions to those patterns. We present anonymized quotes using pseudonyms and they/them/their pronouns.

Results

GSIs' courses covered both content-based knowledge and practice-based components. We found that content-based components seemed to easily transfer online. Regardless of whether GSIs used synchronous or asynchronous methods, they were able to provide lectures and readings that continued building PSTs' content knowledge such as different components of reading instruction (e.g., definitions of phonics and phonemic awareness), exposure to examples of children's literature, or the unique needs of English Language Learners (ELLs). However, GSIs faced challenges in the online classroom when enacting those pedagogies associated with practice-based components. Therefore, in this section we specifically focus on four pedagogies associated with PBTE: representations of practice, approximations of practice, enactment, and reflections on practice.

Representations of practice

When teaching face-to-face, GSIs' included representations that demonstrated how teachers enact components of literacy instruction including read alouds (Ryan, Jules) guided reading (Ryan) and phonics lessons (Taylor); strategies for meeting the unique needs of ELLs (Parker, Morgan); and discourse strategies within math or science lessons for secondary students (Logan). GSIs utilized lectures that decomposed the components of practice, group discussions of readings that outlined practices, and videos or live models of teachers demonstrating practices. For example, prior to ERT, Logan and Parker were able to have PSTs complete a face-to-face observation of elementary classrooms and have PSTs decompose observed practices.

Transfer

Certain representations of practice, such as videos, vignettes, and artifacts of teaching, were easily transferred into the online classroom. GSIs were able to engage PSTs with these representations through whole class mini-lessons

(Ryan), small group discussions (Ryan, Logan), or through prerecorded lectures (Taylor, Parker, Jules, and Morgan). GSIs included representations as they would have used them in their face-to-face class, but changed the method of delivery, using prerecorded lessons, Zoom, or small groups for discussions. In other words, "content and the methods that we're teaching aren't changing, but obviously, the way we're delivering that, is what's different" (Ryan, first interview). Logan demonstrated this transfer when they had PST read and discuss an article in small groups. Through discussion, Logan was able to give PSTs an opportunity to decompose the moves the teacher made to support all students. While Logan had always intended to include this article in their curriculum and the actual representation of practice was not altered, the form of the discussion was changed to a smaller group discussion rather than a whole group discussion, so each PST would be more involved in the decomposition of the practice. Logan believed their small group discussions "worked really well" because "everybody got a chance to talk and everyone did talk there" (second interview).

Adaptations

Due to the relative ease GSIs found in transferring representations online, adaptations appeared to be small scale. First, GSIs had to include additional representations to accommodate the loss of students' field experiences. Taylor, Ryan and Parker included more videos thinking it would be beneficial for students "to actually see the skill" (Ryan, second interview). GSIs also had to be creative in how they produced authentic models. Taylor described, "I used my daughter–I taught her something so they [PSTs] could see or hear what explicit instruction sounds like" (second interview). Likewise, Ryan changed their approach and rather than ask PSTs to reflect on what they saw in placements, tapped into PSTs' own experiences to give them more tangible representations of practice. They asked PSTs to "talk about what they experienced when they were in elementary school so that they can make that connection [between the skill they lectured about and what happens in classrooms]" (second interview).

Additionally, given the variety of formats available for online instruction, GSIs became more intentional about their rationales for using certain representations of practice and the modality they selected to present those representations. For instance, Parker made their course a combination of synchronous and asynchronous sessions as they found the asynchronous format allowed them to better accommodate PST need (e.g., inconsistent access to internet) but also have "more freedom that I didn't necessarily have with a very tight time schedule that was coming with in-person classes" (second interview). However, for certain representations of practice, such as when Parker was introducing instructional strategies through modeling, they strategically chose to place the model in the synchronous portion of class because they wanted to use PSTs as part of the model, so PSTs could observe the interactive element of

the activity (e.g., Parker's modeling of the instructional strategies and PSTs', who were role-playing students, responses to the instruction). They stated, "I wanted to model this activity because I wanted them to be able to see what the activity was about" (Parker, second interview). Taylor, whose class was almost entirely asynchronous, relied on IRIS modules (i.e., interactive, online modules designed to provide information about evidence-based instructional practices such as explicit phonics instruction or peer-assisted learning strategies [PALS; e.g., McMaster, Fuchs, & Fuchs, 2006], Vanderbilt University, 2021) to model teaching practices and provide the background information and theory necessary for PSTs to understand the practice. Students in Taylor's class were expected to complete assigned modules independently.

Loss

Overall, GSIs found that they could transfer or adapt many of the representations of practices they planned to include prior to ERT. However, GSIs still expressed a sense of loss as they were not always able to include authentic representations. Taylor, for example, found it difficult to find videos that modeled effective writing instruction. They said, "It was just a lot of like going through YouTube to try to find a really good example. And it didn't work every week" (second interview). In the first interview, Logan also expressed a loss from having PSTs watch a video asynchronously and not discussing it with peers. They said, "when responses to readings or video go to asynchronous reflection, we lose the reflection of others and thus the ability to view things from another's perspective . . . They are probably not going to get as much out of it." Thus, by having a whole-class discussion, the PSTs would have engaged more fully with the representation of practice through dialogue as a classroom community..

Approximations of practice

We found that prior to ERT, GSIs planned to use four main types of approximations of practice within their courses: creating lesson plans or portions of lesson plans (e.g., writing objectives), creating teaching activities, role playing or rehearsals, and the use of avatars.

Transfer

All six GSIs initially intended to have students create lesson plans as a component of their course. For three of the six GSIs (Taylor, Ryan, Logan), lesson plans were meant to be enacted with K-12 students; for the other three GSIs lessons were either informing mock lessons to be presented in class (Parker) or focused on lesson planning without the intention to enact the lessons (Jules, Morgan). For most GSIs, when they transitioned to online instruction, they maintained the lesson planning component of the course

with limited changes. However, in some cases, this transfer appeared more manageable because PSTs had spent some time in K-12 classrooms prior to ERT. Thus, PSTs had knowledge of the students for whom they were planning the lesson and could tailor lessons to those specific students, which was often a skill being emphasized in the course. For example, since PSTs in Ryan's class had participated in an internship in K-12 school before ERT, Ryan could still include a component of the PSTs' summative assignment that required PSTs to connect "the pedagogical and method stuff that I was trying to teach them and actually make it [the lesson plan] very personal for their students" (first interview).

Rehearsals of a component of practice and the creation of specific skill-based activities also transferred online without significant modifications. Morgan used mock student profiles and continued having PSTs write, revise, and modify objectives for students who were ELLs. Jules asked PSTs to create authentic tasks to teach students a standard or objective using one of the children's books they had to read for the course based on a given theme. Ryan maintained an assignment that required PSTs to curate a text set to engage elementary students in critical literacy. Ryan also utilized breakout rooms on Zoom and had PSTs complete "three small group activities aligned with either the readings or a certain skill I wanted them to practice" (second interview). These activities included discussion boards and questions where PSTs would "brainstorm what you would do for this grade, this level, and this type of skill" (first interview) while skills included selecting texts, text sets, and planning questions that could engage students in critical conversations. Ryan not only found that this method transferred successfully, but may be an improvement over the face-to-face class because more students were fully engaged. "I have been pleasantly surprised by the high level of engagement with my students . . . they've been participating, you know, the same if not more so than they would in our in-person class" (focus group).

Adaptations

While most GSIs transferred lesson planning assignments to the online classroom, for at least one GSI, the discontinuation of their PSTs' field experience required them to make adaptations. For Taylor's course, one of the primary goals was for PSTs to create lesson plans that were informed by data from the previous tutoring session. Accordingly, PSTs submitted lesson plans prior to each tutoring session. Once PSTs could no longer tutor, Taylor was forced to adapt this goal by making up data that showed "the tutee was making progress but still making errors" (second interview). They said:

> They're [PSTs] still creating their lesson plans and then we give them mock assessment data. Because the whole point is for them to learn how to use assessment data to drive their instruction. And so we're still giving them lesson planning practice and assessment analysis practice (second interview).

Taylor appeared to believe this adaptation met the course goal, even if the data were less authentic, because they were not gathered from the PSTs' tutees.

GSIs also adapted rehearsal and role-playing activities. Although Parker did not intend for PSTs to enact their lessons with K-12 students, they did have an assignment that required PSTs to present a demo lesson to their classmates. Parker stated, "I decided to try and keep the teaching demos but do it online through Zoom and facilitated with other technology" (such as flipgrid, second interview). However, Parker shared that in order to make this possible, a lot of the emphasis had to be placed on using the appropriate technology and thus less emphasis was placed on the actual instructional practices. They said PST attention had to be "put toward doing things virtually . . . it took up a little bit of their extra focus just in terms of what it is supposed to look like, what we are expected to do" (second interview). They went on to say "it took some of my focus too . . . it definitely did impact [instruction]." Prior to ERT, Logan's course included a lesson rehearsal with avatars, where a team of two to three PSTs would be physically present in the same room, cooperatively teaching the virtual avatars. After the shift to ERT, PSTs had to cooperatively teach the avatars through Zoom. Logan felt this change made rehearsals less effective because PSTs had difficulty communicating with one another and co-teaching a unified lesson in the remote environment. Indeed, it seemed as though the GSIs spent a considerable amount of time teaching PSTs to use the instructional technologies for their rehearsals when – if the class were in-person – this class time could have been focused on instructional practices that were more relevant for face-to-face instruction.

Loss

While GSIs were still able to use approximations more or less as planned, the purpose behind them sometimes changed. For example, Ryan and Taylor's PSTs could still lesson plan but the purpose of this activity now focused on practicing planning and not on preparing a lesson to enact and reflect on. As Taylor said, PSTs were able "to plan lessons and analyze data but typically, [PSTs] have a good understanding of how to deliver a phonics lesson" (first interview). Taylor's PSTs did not get this understanding because they were not able to authentically practice with students. Logan intended for the avatar rehearsals to inform PSTs' face-to-face enactments, but after the switch to ERT, the avatar rehearsal became the only implementation of the lesson. As a consequence of this loss, Logan said the rehearsal became "more of a reflection of teaching practices than [an opportunity] to change your lesson plan and get ready for the live teach"

(first interview). Additionally, many approximations were designed to give PSTs practice with in-person, not remote teaching, so rehearsals became less authentic because they were performed in a different setting, as was the case when Parker moved their demo lessons to Zoom.

Enactments

Three courses (Ryan, Taylor, and Logan) included embedded early field experiences (see Table 1) where students would be directly teaching K-12 students. These planned enactments ranged in intensity from teaching one math or science lesson (Logan), tutoring students at local elementary schools for eight weeks (Taylor), to two-week field placements in local school districts (Ryan). Each enactment was carefully constructed to provide PSTs opportunities to apply the knowledge of practices gained from representations and approximations of practice. GSIs believed these enactments would be beneficial for PSTs because they provide opportunities for PSTs to experience the "unexpectedness that goes with interacting with kids in the moment and having to do some of that improv. You know, a kid asks you a question or says something that you don't expect and then how do you react to that" (Logan, second interview).

Transfer and adaptations

When local K-12 schools and the university shifted to ERT, courses with embedded early field experiences were not provided access to K-12 students. While teacher candidates completing their teaching internships had the necessary credentials and clearance to transition to remote teaching, the same permissions were not granted by the local districts to PSTs engaged in early field experiences. The lack of access to K-12 students led GSIs to declare it impossible to modify the intended enactments for remote teaching. Taylor attempt**ed** an adaptation of their planned enactment. They had PSTs conduct peer tutoring sessions where one PST tutored and the other role played a first-grader. Other GSIs dropped the intended enactment and instead made approximations the final course activity (Ryan, Logan). When PSTs' field placements were canceled, Ryan opted to not have PSTs rehearse their lessons with peers. Instead, they created a new assignment where PSTs had "simulations and case studies with fake student data" (first interview). Logan had intended to have PSTs rehearse for their enactment using avatars, but when PSTs could no longer enact the lesson with students, they had to adapt the course so the avatar lesson became the final enactment. This adaptation changed the intention of the avatar assignment from a means to help PSTs reflect on and learn from mistakes, revise their lesson, and prepare for enactment to an end product.

Loss

All GSIs mourned the loss of intended enactments. In the first interview, Taylor expressed hesitation around their choice to have PSTs role play first graders. They said,

> Some students are better than others when it comes to pretending to be a first grader. So, it's good practice, but they're not necessarily going to get the best opportunities to provide feedback or to adjust their instruction based on students' responses.

However, in their second interview, Taylor's hesitation became dissatisfaction. They said, "I'm also not sure how meaningful it was anyway when you're practicing with your peers for like 10 minutes or 15 minutes during class." In their second interviews, other GSIs echoed Taylor's dissatisfaction. Logan said, "I just don't think that there are a lot of ways to approximate that [enactment]" and Ryan said "what [the PSTs] are missing out on is getting that authentic experience of what it's like to sit down in front of kids." Opportunities to enact practices in authentic teaching situations with K-12 students in physical classrooms were irreplaceable to these GSIs.

The loss of intended enactments was especially acute because the courses were intentionally designed to have these enactments be the culminating activities. Both Ryan and Logan's courses asked students to refine lesson plans throughout the semester, leading up to PSTs teaching and reflecting on their lessons at the end of the course. Both GSIs felt like the loss of this activity harmed PSTs' confidence in their teaching ability. As Ryan said, "[the enactment] was supposed to be like their second round of like, I've been here for a while I feel more confident, like I kind of know what I'm doing" (first interview) and Logan echoed, "that's the biggest thing . . . the sense of accomplishment and going into a room and a class full of kids and coming out on the other side" (first interview). GSIs felt this loss may have the consequence of producing students who are not sufficiently prepared for future field experiences. As Taylor said, "it's still not what they need before they start to student teach in the fall" (first interview).

Reflection

GSIs initially built in multiple opportunities for PSTs to reflect on articles and videos presented in class, their own instruction, and student progress over time. The type of reflection GSIs initially planned often determined the extent to which the reflection activity was kept intact after the transfer to online instruction.

Transfer

GSIs transferred all reflections except those designed to follow enactments. For example, Parker had intended for their final assignment to be a video analysis "where they [PSTs] are going to watch about 20–25 minutes of an authentic

classroom, and they are going to analyze based on the readings for the course" (first interview). Parker never intended for this assignment to be based on enactment and thus did not need to adjust it after the transition to ERT. In other instances, when GSIs required PSTs to reflect on practices introduced in a course reading, the reflection assignment often remained the same (Morgan, Logan). Morgan described, "they have to read an article and relate the article to their own teaching experience, and that's the same" (first interview). Yet, this was partially possible because Morgan's PSTs spent the first half of the semester in classrooms and had some experience with K-12 students.

Adaptations

When GSIs intended for PSTs to reflect on their face-to-face enactments (Logan, Ryan, Taylor), GSIs had to make adjustments to reflection assignments. In Logan's course, rather than have PSTs reflect on their lesson rehearsal, refine the lesson based on that reflection, and then reflect on the final enactment, they shifted the focus of the second half of the course to require PSTs to reflect on representations of practice:

> the second half of the course was moved to more of a reflection experience in general, a reflection on what we've done in the first half of the course or reflections on videos or other things that you've seen that you can apply to what we've done in the first half of the class (second interview).

Logan was still able to incorporate aspects of reflection in their course. However, the nature of PSTs' reflections changed from focusing on informing changes in PSTs' own practice to either decomposing or analyzing another teacher's practice. Likewise, Taylor's original final assignment required PSTs to reflect on the learning progression of the student they were tutoring. Since the PSTs had only done a few face-to-face tutoring sessions, Taylor adapted the assignment to require PSTs to reflect on mock data rather than actual student data. In Taylor's class, they also frequently asked PSTs to reflect on how the content PSTs were learning applied to their work with their tutee, but once PSTs stopped working with their tutees, Taylor had to adjust those questions and instead asked PSTs to reflect on their experiences as elementary students. They explain,

> I used discussion boards to give them an opportunity to reflect on their own learning and to see what did you experience versus what you didn't experience or what do you want to make sure you include when you are teaching? I guess by reflecting on their own learning and by connecting it to their own experiences as an elementary student, the goal was to reinforce the content of that week. (second interview).

While Taylor attempted to use these types of reflection to keep the content grounded in practice, there is potential for PSTs to form misconceptions about teaching if they rely solely on their own experiences in K-12 classrooms (e.g., Lortie, 1975, 2020) rather than on their experiences enacting research-based best practices in their intended tutoring sessions.

Loss

In many instances, opportunities for reflection were lost due to the absence of field experiences (Taylor, Ryan, Logan). Ryan shared,

> Discussion boards I would have done in the past would have also been connected to their placement. After we went to the online space I couldn't necessarily say how is your teacher organizing x y & z ? What are you seeing in your placement classroom? . . . you know things like that where we would incorporate it into the placement. I kind of had to stop doing that (second interview).

Since PSTs were no longer engaging in regular practice with K-12 students, it became more difficult for GSIs to ask PSTs to reflect on practice and thus in some cases opportunities for reflection were lost. In other cases, PSTs lost not only the opportunity to reflect on their own teaching but also the opportunity to refine specific components of a lesson. For example, Logan still required PSTs to reflect on their avatar experience, but PSTs did not have the opportunity to refine that lesson and enact those refinements.

Taylor's use of mock data in place of actual student data led to a loss of authentic reflection on the progress that students were making over the course of the semester. Taylor explained:

> The issue that I'm facing is that 75% of their data is going to be based on me making stuff up. It's going to be based on mock data, and I just don't know how meaningful it will be to present mock case studies to their peers when they're supposed to interact in this discussion post or discussion board format, but it's not real (first interview).

In previous course iterations, Taylor felt PSTs not only gained a greater understanding of practice through their own case studies which required them to really understand their tutees' trajectory, but also through their peers' case studies since peers may have encountered different experiences or tried different approaches with their tutee. Ultimately, Taylor felt this opportunity was rendered moot when PSTs' case studies were based on mock data rather than student learning. In general, GSIs maintained reflection as a central pedagogy in their courses, but many GSIs adjusted their assignment and pedagogical approach to focus PST reflection more on representations and approximations of practice rather than on their own authentic enactments.

Discussion

Our findings suggest the GSIs were able to transfer representations and approximations of practice online with minimal adaptations. These adaptations did not appear to greatly disrupt the perceived effectiveness of the pedagogy and at times, GSIs reported benefits from these changes. However, GSIs found intended enactments, including face-to-face student teaching and tutoring, to be disrupted by the shift to online instruction and the loss of access

to K-12 students. GSIs also reported cascading effects from the loss of enactments that impacted PSTs' reflections, their lesson planning activities, and even representations of practice that would have asked PSTs to consider knowledge of K-12 students gained in field experiences. For example, GSIs questioned whether PSTs could fully understand for whom they were planning lessons without knowledge of students gained from early field experiences. Additionally, when GSIs reported replacing reflections on field experiences with reflections on PSTs' own K-12 experiences, they risk encouraging PSTs to reproduce outdated practices (Lortie, 1975, 2020).

The loss of enactments meant GSIs' courses culminated in approximations of practice including avatars and rehearsals. These approximations allowed PSTs to practice presenting lessons but limited their ability to develop skills needed to provide authentic feedback and make real time decisions based on students' responses. These findings support Kidd and Murray (2020) who found that some PSTs acquired knowledge about practices, rather than the ability to apply their knowledge in practice when opportunities for authentic enactments with K-12 students were not available. This consequence is problematic for PBTE courses, where the desired learning outcome is teachers' ability to enact their knowledge (Grossman et al., 2009). Potential impacts to a practice-based approach to teacher education may have also occurred with the loss of early field experiences experienced by PSTs in the present study. Welsh and Schaefer (2017), for example, argued that early field experiences give PSTs opportunities to practice more small-scale practices, such as text selection, before integrating them within larger lesson plans (e.g., a reading lesson) when PSTs are in year-long field placements. Early enactments allow PSTs "to gradually assume more independent responsibilities for teaching" (Darling-Hammond, 2010, p. 40), which, when coupled with structured opportunities to reflect within teacher education courses, can prepare teachers for effective teaching (Darling-Hammond, 2006; Singer, Catapano, & Huisman, 2010; Zeichner, 2010). According to Darling-Hammond (2006), PSTs need authentic experiences with students within teacher education, so they can begin to understand more nuanced aspects of teaching. Grossman et al. (2009) also argue this work facilitates development of PSTs' professional identities. Thus, GSIs feared losses of experience with K-12 students would diminish PSTs' confidence in and willingness to enact teaching practices that they did not get to practice in coursework (Gainsburg, 2012; Hoppey et al., 2021). GSIs' fears may not have been unfounded as scholars have found PSTs' confidence can grow as a result of student teaching (e.g., Wetzel et al., 2018) and tutoring (Hart & King, 2007).

GSIs also expressed a sense of loss surrounding the classroom learning community because PSTs did not have opportunities to reflect on, and thus learn from, enactments with their peers. Prior studies conducted within PBTE

courses have found this reflection with one's peers can lead PSTs to learn from each other and thus acquire an "increasingly broad and strategic range of practices" (Wetzel et al., 2018, p. 101) as well as understandings of how to apply these practices in multiple classroom contexts (Juzwik et al., 2012). Developing reflection skills within teacher education programs may also lead to reflective practitioners (Wetzel et al., 2018).

Conversely, GSIs recognized several benefits from shifting some practice-based components online, including creating smaller groups that provided increased PST participation in representations and approximations of practice. Every GSI but Ryan adapted their course to be at least partially asynchronous and reported benefits from this shift, including allowing PSTs to access material when most convenient (e.g., when the internet was available). The inclusion of asynchronous components had a further effect: having more time to cover content. PSTs engaged in learning subject-area content and reviewing representations of practice during asynchronous modules or lectures, which allowed GSIs to devote synchronous time to approximations designed to develop PSTs' pedagogical skills.

Based on the reported experiences of the six GSIs under study, we can offer several recommendations for online, practice-based teacher education courses. Teacher education courses that introduce practices using representations of practices can often be adapted to an online environment. Whether implemented synchronously or asynchronously, representing practices online could be a successful way to provide more flexible hybrid learning experiences without diminishing teacher preparation. Hybrid courses capture another theoretical benefit of online learning and offer the field of teacher education an opportunity to expand the pool of PSTs to students who cannot adhere to rigid schedules or geographic constraints of face-to-face teacher education programs (Carney, 2020; Dyment & Downing, 2020). The adaptability of some PBTE pedagogies to an online modality may help support initiatives such as Grow Your Own **(GYO)** teacher programs that aim to address teacher shortages and diversify the teaching pool by recruiting community members such as local activists and paraprofessionals into the teaching profession (Gist, Bianco, & Lynn, 2019). Additionally, we argue that GYO programs preparing paraeducators for teacher licensure would benefit from hybrid teacher education programs for two reasons: 1) these teacher candidates in these programs have employment responsibilities and time commitments that make attending in-person class difficult; and 2) because paraeducators already have access to students, they can fulfill the enactment component of PBTE within their work environment. This situation would enable them to fulfill the needed representations of practice and reflections on enactments online without losing authentic enactments.

Perspectives of the present GSIs, however, suggest limitations regarding the viability of fully online teacher education programs. The GSIs under study appear to believe courses where PSTs enact practices must provide physical access to students because PSTs can only learn how to enact practices when operating under authentic conditions (i.e., with students in classrooms). This authentic enactment allows PSTs to develop the ability needed to monitor and respond to student performance necessary for teaching in person. Without authentic enactments, GSIs appeared to believe PSTs would be prepared only for teaching online. GSIs' perspectives are validated by other studies such as Jones et al. (2021) who found PSTs ceased facilitating small, cooperative group learning after shifting instruction online and Hoppey et al. (2021) who found PSTs' professional judgment was hampered by a lack of experience interacting with students in classrooms while conducting student teaching online.

Although these recommendations align with existing published research, the condition of ERT likely shaped GSIs' experiences and limited their perspectives in several meaningful ways. First, GSIs had limited experience teaching online prior to ERT and were not prepared by their institutions for online teaching. They thus had a minimal understanding of instructional resources available to reduce the "distance" between themselves and their PSTs when not physically present in the classroom and increase PSTs' receipt of instruction and thus learning (Moore, 2013). For example, Logan, who asked PSTs to watch a video asynchronously but then lamented the loss of opportunity for PSTs to reflect with their peers, likely could have created an opportunity for PSTs to engage with each other online. This outcome would be more likely if Logan's institution had prepared them for online teaching and given them a greater awareness of available technologies. Additionally, because GSIs had limited exposure to online teacher education, they were likely unaware of different programmatic possibilities that could expand possible enactments beyond traditional face-to-face settings. Examples of these possibilities include the use of wearable devices that stream onto virtual platforms that have replaced the viewing of prerecorded videos in medical education (Chao et al., 2021). As another example, it is possible that PSTs could still complete fieldwork with students in traditional in-person classrooms but could reflect with their teacher educators and peers online. GSIs' lack of awareness of these possibilities renders impossible their judgments regarding the viability of non-traditional enactments.

Second, because GSIs were operating under conditions of ERT, there were complexities added to their instructional decisions. Specifically, GSIs stated they were motivated by a desire to reduce PST stress and provide accommodations to PSTs who, for example, may have limited internet access (Gannon, Anthony, Byrne, Hogan, & Dhingra, 2021). This motivation led some GSIs to limit the number of synchronous class sessions or transition classes to asynchronous modality. GSIs also had to rapidly transition their classes online which limited the time they themselves had to acquire proficiency with online

teaching resources. The resulting limited use of technologies was in turn likely exacerbated by the fact that GSIs were novice online instructors. ERT also removed all options for field experiences available to GSIs and their PSTs at the university under study which led GSIs to conclude opportunities for enactment with K-12 students were lost.

Third, GSIs perceived the PSTs themselves were unfamiliar with the technologies GSIs utilized for online learning. This perception led GSIs to devote instructional time to teaching PSTs to use technologies, which may have exacerbated GSIs' unwillingness to adopt new technologies and accept those they found to be less than ideal. Further, the GSIs judgment of the inauthenticity of virtual learning practices may have reflected the perceptions of their students, who were presented with these practices as alternatives in a pandemic, and whose estimation of the credibility of the tasks, avatars, and their own performances compared to a now-disrupted reality were possibly affected by their emergency context (Mikeska & Howell, 2021).

Limitations and directions for future research

Despite the fact that findings were collected from GSIs who were novice online instructors teaching under ERT conditions, our findings illuminate several affordances and challenges that may emerge when PBTE is adapted for online courses. Future research should question how practice-based teacher educators design online courses. For example, are they able to bring each pedagogy online? Are they able to create authentic enactments that provide PSTs with knowledge of how to teach, not just in the online classroom but also in traditional, face-to-face classes? Furthermore, it should be noted that several GSIs in the present study (Parker and Logan) were able to capitalize on PSTs' knowledge of K-12 students gained via observations in elementary classrooms prior to ERT. These GSIs were able to refer to observations in subsequent approximations of practice. It is thus possible that an online course could suffer losses not observed in this study. As Parker observed, "some of them [PSTs] have not been in an elementary school since they were in elementary school. And being able to see real kids and interact with real kids . . . you just can't replace it" (first interview).

However, it is also possible that intentionally-designed, online PBTE courses could mitigate some challenges the GSIs noted and even build upon the affordances of teacher education online. Many of the challenges faced by GSIs in our study were also articulated by more seasoned teacher educators in Kidd and Murray (2020). Thus, if institutions prioritized training in online instruction (Byrne, Hogan, Dhingra, Anthony, & Gannon, 2021), teacher educators could be armed with understandings of technologies and pedagogies that, for example, allow them to create

more authentic models, enactments, and reflections on enactments that encourage PSTs to learn from peers. Under these conditions, it may be possible to meaningfully replicate more PBTE pedagogies online. Future research should both name and explore the effects of these technologies.

Future research should also identify and test the efficacy of various programmatic options that could, for example, include hybrid classes where PSTs enacted practices with students in-person but reflected on enactments through virtual platforms. Would such programs afford flexibility to PST**s** without sacrificing preparation for traditional, in-person teaching positions? This research could have an additional benefit: even if each pedagogy cannot be shifted online, understanding the effect of online teaching technologies could allow teacher education programs to make informed decisions around which components of a PST's training could be taught online. This again is a worthwhile goal because of the potential for online instruction to increase accessibility of teacher education programs (Carney, 2020). However, hybrid programs that allow PSTs to engage in enactments within schools local to PSTs should investigate the ways in which they–programs–can monitor the quality of these experiences. For example, ensuring mentor teachers are of high quality would be especially important. We would strongly suggest teacher education programs develop and test procedures for ensuring PSTs in geographically diverse schools have quality contexts for their enactments.

Finally, future research should attempt to replicate and extend the findings from the current study. Replication with participants from different, and hopefully diverse, institutions could increase the generalizability of the current findings. Our findings currently represent the narrow perspective of GSIs from a single institution. Extension studies should include the voices of the PSTs themselves as they report the advantages and disadvantages to online PBTE. This study was limited to the perspectives of GSIs and thus missed a valuable stakeholder perspective.

Conclusion

In conclusion, GSIs who were novice online instructors operating under conditions of ERT were able to transfer instruction in content (e.g., providing definitions of phonics) online. Despite having limited knowledge of available online teaching strategies or tools, the present GSIs were able to modify representations and approximations of practices relatively successfully. However, the loss of authentic enactments presents a difficult obstacle for online PBTE courses. Consequences from this loss on PSTs' ability to develop professional identities and to deliver student-centered teaching are yet unknown. Despite these potential consequences, we argue there are benefits to understanding what pedagogies GSIs transferred online and believe there are lessons the teacher education field can learn from ERT.

GSIs' challenges with, for example, creating authentic models of practice or providing opportunities for PSTs to reflect with peers, could be mitigated if GSIs had increased training on technologies available for online learning. Instructors who are able to effectively design and implement courses/class sessions that represent and approximate practices online may be able to create flexibility in teacher education programs. This flexibility may open programs to a larger population of potential students (e.g., paraprofessionals) who may otherwise find requirements of face-to-face courses exclusionary.

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References

Alan, Y., Biçer, N., & Can, F. (2020). Perspectives of pre-service teachers on distance education: Covıd-19 process. *Revista Argentina de Clínica Psicológica*, *29*(5), 1972–1984.

Ball, D. L., & Cohen, D. K. (1999). Developing practice, developing practitioners: Toward a practicebased theory of professional education. In L. Darling-Hammond & G. Sykes (Eds.), *Teaching as the learning profession* (pp. 3–32). San Francisco: Jossey-Bass.

Bergen, N., & Labonté, R. (2020). "Everything is perfect, and we have no problems": Detecting and limiting social desirability bias in qualitative research. *Qualitative Health Research*, *30*(5), 783–792. doi:10.1177/1049732319889354

Byrne, V. L., & Donlan, A. E. (2020). Presenting a validated mid-semester evaluation of college teaching to improve online teaching. *Online Learning*, *24*(2), 94–110. doi:10.24059/olj.v24i2.2126

Byrne, V. L., Hogan, E., Dhingra, N., Anthony, M., & Gannon, C. (2021). An exploratory study of how novice online instructors pivot to remote assessment strategies. *Distance Education*, *42*(2), 184–199. doi:10.1080/01587919.2021.1911624

Carney, M. C. (2020). Designed for the digital age: Teacher preparation at TEACH-NOW Graduate School of Education. *The New Educator*, 17(1), 21–38.

Chao, T. N., Frost, A. S., Brody, R. M., Byrnes, Y. M., Cannady, S. B., Luu, N. N., … Newman, J. G. (2021). Creation of an interactive virtual surgical rotation for undergraduate medical education during the COVID-19 pandemic. *Journal of Surgical Education*, *78*(1), 346–350. doi:10.1016/j.jsurg.2020.06.039

Darling-Hammond, L., Hammerness, K., Grossman, P., Rust, F., & Shulman, L. (2005). The design of teacher education programs. In L. Darling-Hammond & J. Bransford (Eds.), *Preparing teachers for a changing world: What teachers should learn and be able to do* (pp. 390-441). Jossey-Bass.

Darling-Hammond, L. (2006). Constructing 21st-century teacher education. *Journal of Teacher Education*, *57*(3), 300–314. doi:10.1177/0022487105285962

Darling-Hammond, L. (2010). Teacher education and the American future. *Journal of Teacher Education*, *61*(1–2), 35–47. doi:10.1177/0022487109348024

Donitsa-Schmidt, S., & Ramot, R. (2020). Opportunities and challenges: Teacher education in Israel in the COVID-19 pandemic. *Journal of Education for Teaching*, *46*(4), 586–595. doi:10.1080/02607476.2020.1799708

Dyment, J., & Downing, J. J. (2020). Online initial teacher education: A systematic review of the literature. *Asia-Pacific Journal of Teacher Education*, *48*(3), 316–333. doi:10.1080/1359866X.2019.1631254

Forzani, F. M. (2014). Understanding 'core practices' and 'practice-based' teacher education: Learning from the past. *Journal of Teacher Education*, *65*(4), 357–368. doi:10.1177/0022487114533800

Gainsburg, J. (2012). Why new mathematics teachers do or don't use practices emphasized in their credential program. *Journal of Mathematics Teacher Education*, *15*(5), 359–379. doi:10.1007/s10857-012-9208-1

Gannon, C., Anthony, M., Byrne, V., Hogan, E., & Dhingra, N. (2021). High tension: Graduate student instructors, professional judgment, and emergency remote teaching. *Journal of the Professoriate*, *12*(1), 122–149.

Gist, C. D., Bianco, M., & Lynn, M. (2019). Examining grow your own programs across the teacher development continuum: Mining research on teachers of color and nontraditional educator pipelines. *Journal of Teacher Education*, *70*(1), 13–25. doi:10.1177/0022487118787504

Grossman, P., Hammerness, K., & McDonald, M. (2009). Redefining teaching, re-imagining teacher education. *Teachers and Teaching: Theory and Practice*, *15*(2), 273–289. doi:10.1080/13540600902875340

Grossman, P., Compton, C., Igra, D., Ronfeldt, M., Shahan, E., & Williamson, P. W. (2009). Teaching practices: A cross-professional perspective. *Teachers College Record*, *111*(9), 2055–2100. doi:10.1177/016146810911100905

Hart, S. M., & King, J. R. (2007). Service learning and literacy tutoring: Academic impact on pre-service teachers. *Teaching and Teacher Education*, *23*(4), 323–338. doi:10.1016/j.tate.2006.12.004

Hodges, C., Moore, S., Lockee, B., Trust, T., & Bond, A. (2020). The difference between emergency remote teaching and online learning. EDUCAUSE. https://er.educause.edu/articles/2020/3/the-difference-between-emergency-remote-teaching-and-online-learning

Hoppey, D., Mills, K., Reed, D., & Collinsworth, C. (2021). Teacher candidates' perspectives of infusing innovative pedagogical methods and trauma-informed practices into a teacher education program during the COVID-19 pandemic. *School-University Partnerships*, *14*(3), 43–69.

Jones, L., Durham, C., & Cataneo, A. (2021). Rising to the challenge: Preparing pre-service teachers during a global pandemic. *The New Educator*, 1–19. doi:10.1080/1547688X.2021.1991538

Juzwik, M. M., Sherry, M. B., Caughlan, S., Heintz, A., Borsheim-Black, C., Auerbach, S., & Herbst, P. (2012). Supporting dialogically organized instruction in an English teacher preparation program: A video-based, Web 2.0-mediated response and revision pedagogy. *Teachers College Record*, *114*(3), 1–42. doi:10.1177/016146811211400307

Keefe, E. S. (2020). Learning to practice digitally: Advancing preservice teachers' preparation via virtual teaching and coaching. *Journal of Technology and Teacher Education*, *28*(2), 223–232.

Kidd, W., & Murray, J. (2020). The Covid-19 pandemic and its effects on teacher education in England: How teacher educators moved practicum learning online. *European Journal of Teacher Education*, *43*(4), 542–558. doi:10.1080/02619768.2020.1820480

Lortie, D. C. (1975; 2020). *Schoolteacher: A sociological study*. Chicago: University of Chicago Press.

McDonald, M., Kazemi, E., & Kavanagh, S. S. (2013). Core practices and pedagogies of teacher education: A call for a common language and collective activity. *Journal of Teacher Education*, *64*(5), 378–386. doi:10.1177/0022487113493807

McMaster, K. L., Fuchs, D., & Fuchs, L. S. (2006). Research on peer-assisted learning strategies: The promise and limitations of peer-mediated instruction. *Reading & Writing Quarterly*, *22*(1), 5–25. doi:10.1080/10573560500203491

Mikeska, J. N., & Howell, H. (2021). Authenticity perceptions in virtual environments. *Information and Learning Sciences*, *122*(7/8), 480–502. doi:10.1108/ILS-10-2020-0234

Moore, M. G. (2013). The theory of transactional distance. In M. Moore (Ed.), *Handbook of distance education* (pp. 22–38). New York: Routledge.

Moorhouse, B. L. (2020). Adaptations to a face-to-face initial teacher education course 'forced' online due to the COVID-19 pandemic. *Journal of Education for Teaching*, *46*(4), 609–611. doi:10.1080/02607476.2020.1755205

Sasaki, R., Goff, W., Dowsett, A., Parossien, D., Matthies, J., Di Iorio, C., . . . Puddy, G. (2020). The practicum experience during Covid-19–Supporting Initial Teacher Education student's practicum experience through a simulated classroom. *Journal of Technology and Teacher Education*, *28*(2), 329–339.

Singer, N. R., Catapano, S., & Huisman, S. (2010). The university's role in preparing teachers for urban schools. *Teaching Education*, *21*(2), 119–130. doi:10.1080/10476210903215027

Smith, M. S., Hughes, E. K., Engle, R. A., & Stein, M. K. (2009). Orchestrating discussions. *Mathematics Teaching in the Middle School*, *14*(9), 548–556. doi:10.5951/MTMS.14.9.0548

Vancell, J. (2021, June-July). *The COVID-19 Pandemic and its effects on the preservice teacher practicum: A literature review*. International Conference: The Future of Education, Florence Italy, Online. Online.

Welsh, K. A., & Schaefer, C. (2017). Developing the effective teaching skills of teacher candidates during early field experiences. *The Educational Forum*, *81*(3), 301–321. doi:10.1080/00131725.2017.1314574

Wetzel, M. M., Hoffman, J. V., Roach, A. K., & Russell, K. (2018). Practical knowledge and teacher reflection from a practice-based literacy teacher education program in the first years: A longitudinal study. *Teacher Education Quarterly*, *45*(1), 87–111.

Yin, R. K. (2014). *Case study research design and methods (5th ed.)*. Thousand Oaks, CA: Sage.

Zeichner, K. (2010). Rethinking the connections between campus courses and field experiences in college- and university-based teacher education. *Journal of Teacher Education*, *61*(1–2), 89–99. doi:10.1177/0022487109347671