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Call for Manuscripts for the
2022 AILACTE Journal, Volume XIX

The Association of Independent Liberal Arts Colleges of Teacher Education (AILACTE) is a non-profit organization dedicated to the work of educator preparation programs in private liberal arts institutions. AILACTE supports, recognizes, and advocates for private higher education institutions that offer a liberal arts education. As an affiliate of the American Association of Colleges for Teacher Education (AACTE), we provide communication, resources, information sharing, and leadership across organizations. Each year AILACTE publishes a peer-reviewed journal. The goal of the journal is to disseminate scholarly work that enhances the work of teacher education professionals in independent, liberal arts colleges and universities.

The 2022 journal will be a non-themed volume. Manuscripts may address any issue that will enhance the work of teacher educators in a liberal arts context. Topics that are appropriate for the journal include teaching and learning strategies; candidate and program assessment; diversity, equity, and inclusion; policy changes; program models; etc. Although submissions are not limited to research studies, manuscripts that are grounded in literature and supported by data will be given stronger consideration.

Manuscripts are due June 17, 2022, and must follow APA guidelines, 7th Edition. Please refer to the *AILACTE Journal* Submission Guidelines and Checklist for the additional *Journal* requirements (https://ailacte.org/AILACTE_Journal). To submit your materials, go to the Author Submission and Biography form. Once you have completed the form, there is a place for you to submit your materials (Author Submission and Biography form and the manuscript). We look forward to reading your work and learning from your experiences, ideas, and research.

The 2023 journal will be a themed volume addressing The Intersection of Neuroscience and Education. A detailed Call for Manuscripts for the 2023 volume will be posted on the AILACTE website (www.ailacte.org) in September 2022.

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AILACTE Journal
Volume XVIII
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Table of Contents

From the Editors

When we first selected the theme for volume XVIII of the *AILACTE Journal*, we believed (or at least hoped) that the COVID-19 pandemic would be behind us by the time this edition was published. Our chosen title, **Rethinking Teacher Education: Providing Quality Programs During and Post Pandemic**, references our naïve, wishful thinking that by late 2021 we would be living in a post-pandemic world. Of course, that outcome has turned out not to be the case, and we find ourselves increasingly wondering less about when the pandemic might end and more about how we might best adapt to living in its shadow.

As we wrote in our Call for Manuscripts, almost no sector of society has been left unaffected by the pandemic—including, of course, education. As schools abruptly closed in the spring of 2020 to slow the spread of the virus, students and educators had little time to adjust to a new educational paradigm. Now that we have considerable experience both with virtual learning and with nimbly adjusting our teacher education programs to meet the ever-changing educational context, we are able to reflect on what we've learned in the past 21 months. The three articles in this volume all investigate the experiences of teacher candidates who completed their capstone field experiences in virtual learning environments.

Stephanie Shedrow discusses how the pandemic pushed teacher educators to employ new technologies and pedagogies, and her study examines how their teacher candidates experienced those new tools both as students in their own university classrooms and as novice teachers in their field placements. The results of her two surveys suggest a positive correlation between the technology used by teacher educators and the virtual tools subsequently used by their teacher candidates.

Nalline Baliram, Kirsten Koetje, and Emily Huff are also interested in teacher candidates' experiences after transitioning to a virtual learning environment (VLE). They surveyed both teacher candidates and their mentor teachers in K–12 schools to ascertain their perceptions of preparedness for a VLE, their confidence in creating an effective online learning setting, obstacles hindering the effectiveness of the VLE, and strategies for building classroom community in virtual learning spaces. The authors

note that although both groups of participants expressed more confidence in the VLE after a semester of experience, the challenge of student engagement remains a significant concern.

Finally, in a qualitative case study, Nicole Ralston and Rachel Blakely explore how the transition to distance learning affected teacher candidates in their dual roles: both as university students and as teachers in K–12 classrooms. The teacher candidates describe challenges in both settings and worries about adequately meeting the needs of their K–12 students, but they also note the unique experiences and skills that the pandemic has afforded them. While the teacher candidates sometimes struggled with feelings of competence in the virtual classroom, they seemed to experience higher levels of autonomy than they might have in a more traditional student teaching context.

All three articles offer takeaways that will continue to have relevance for teacher education programs as we strive to deliver high-quality teacher preparation back in predominantly in-person environments. Shedrow points to teacher candidates' desire to maintain the benefits of technology going forward: increased accessibility of course materials and flexibility of class meetings. Baliram, Koetje, and Huff urge teacher preparation programs to focus on a mindset of creativity and flexibility when teaching technological tools and to prioritize strategies that encourage student engagement, while Blakely and Ralston suggest that enhancing teacher candidates' feelings of relatedness, competence, and autonomy in the field will better support their transition to the profession.

In closing, producing an academic journal is a considerable undertaking, and we could not do it without the contributions of many. We would like to thank our authors; the *AILACTE Journal* Editorial Board; Alyssa Haarer, executive assistant; Barbara Grinnell, graphic designer; and the AILACTE Executive Committee. With volume XVIII we are delighted to welcome two assistant editors, Julie Shalhope Kalnin and Kevin Thomas. Their work on behalf of the *Journal* has been invaluable, and they are especially deserving of thanks.

Jacqueline Crawford, Simpson College
Elizabeth Leer, St. Olaf College

Student Engagement & Digital Tools: Lessons Learned During the COVID-19 Pandemic

Stephanie Shedrow
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Abstract

Abrupt changes to teaching and learning because of the COVID-19 pandemic pushed teacher educators to incorporate new technologies and pedagogies while teaching unfamiliar course designs (i.e., online, blended, flipped, hybrid, HyFlex). This study examined elementary teacher candidates' experiences with tech tools in college courses and the tools they subsequently incorporated into teaching during field placements. The results of two surveys indicate that teacher candidates broadly appreciated the use of tech tools in their university-based courses. That said, they wanted the tools to be used meaningfully by technically proficient instructors who align the tools with course learning outcomes. Teacher candidates also wanted the increased accessibility to course materials and class meetings to continue after the pandemic ends. Finally, data from this study both echoes previous research indicating that teacher candidates use the technology tools they experience during college classes and presents a correlation between the tools candidates found engaging as learners and those they employed when teaching during field placements.

Keywords: technology, teacher candidates, online

Student Engagement & Digital Tools: Lessons Learned During the COVID-19 Pandemic

Without question, the COVID-19 pandemic has touched everyone in one way or another. In teacher education, university and college instructors were pushed to teach in new contexts with unfamiliar tools. Beyond the initial shift to courses offered entirely online in spring 2020, teacher educators also faced similar circumstances the following academic year when asked to teach blended, flipped, hybrid and/or HyFlex courses[1]. In the push to rapidly redesign courses so they were accessible in multiple contexts, many instructors were left to use trial-and-error approaches when incorporating digital technology; however, as semesters and the pandemic progressed, college instructors' focus moved from simply *being* online to *engaging* students while learning online.

Numerous researchers have documented the vital role engagement plays in learning (e.g., Gilboy et al., 2015; Reeve, 2012; Skinner & Belmont, 1993). Since the 1990s, digital technologies have increasingly been linked to student engagement (as an antecedent, consequence, or both), and the two became inextricably intertwined during the COVID-19 pandemic. While this avenue of research is growing rapidly (e.g., Bond & Bedenlier, 2019; Bond et al., 2020), research regarding the engagement of *teacher candidates* with digital tools is scarce (Bedenlier et al., 2020) and underscores the lapse on the part of teacher educators to demonstrate meaningful integration and advantages of technologies (Liu, 2016; Ping et al., 2018; Tondeur et al., 2012; Tondeur et al., 2019).

As we move beyond the confines of the pandemic, it is important to stop and consider what has been gained as the bounds of our profession have been stretched. What did we learn about digital tools and teacher candidate engagement? Importantly, such newfound knowledge can help to shape pedagogical decision making in courses across the spectrum of online, blended, flipped, hybrid, HyFlex and face-to-face classrooms. But how do we know which tools are worth transferring? Additionally, when looking beyond the university experience, what happened when teacher candidates moved from college classes in digital spaces to field placements in digital spaces? Did they use the technologies

modeled by instructors? Answers to these questions can provide a foundation for understanding how digital tools can be used to engage teacher candidates as well as assist candidates in using technology when teaching. Accordingly, the following questions guided this study:

1. What digital technology did students name as being most widely used by course instructors during the pandemic?
2. Which technology tools did teacher candidates find engaging? Which technology tools did teacher candidates find least engaging?
3. Whether and how did teacher candidates' university classroom experiences with technology influence their own subsequent teaching?

Literature Review
Defining Engagement and Digital Technology

Over a decade ago scholars Trowler and Trowler (2010, p. 9) proclaimed, "The value of engagement [in education] is no longer questioned." However, researchers are still at odds in defining engagement, let alone the complex influences that shape and are shaped by engagement. Drawing from syntheses of previous work on the effects of digital technology on student engagement in higher education, the following understandings guided this study:

> Student engagement is the energy and effort that students employ within their learning community, observable via any number of behavioral, cognitive or affective indicators across a continuum. It is shaped by a range of structural and internal influences, including the complex interplay of relationships, learning activities and the learning environment. The more students are engaged and empowered within their learning community, the more likely they are to channel that energy back into their learning, leading to a range of short and long-term outcomes that can likewise further fuel engagement. (Bond et al., 2020, p. 3)

Equally important is having a shared understanding of what is meant by digital technologies. While some scholars (e.g., Amirault, 2021; Warner et al., 2018) define *educational* technology as any tool that helps solve problems (i.e., writing tablets,

utensils, and constructs such as calculus), *digital* technologies are "electronic tools, systems, devices and resources that generate, store, or process data" (State Government of Victoria, Australia 2019). In this current study, defining digital technologies (tools) in this manner placed distinctive parameters around the pedagogies being studied.

Technology and Engagement in Teacher Education

In a systematic review of 43 peer-reviewed articles documenting the effects of technology on student engagement, Bedenlier and colleagues (2020) found only two studies that specifically addressed teacher candidates (p. 317). One of the articles (Atmacasoy & Aksu, 2018), included a review of ten quantitative peer-reviewed studies detailing the impact of blended learning on academic achievement and attitudes of teacher education programs in Turkey. Findings in this review included positive links between blended learning and fostering high student engagement (Atmacasoy & Aksu, 2018). The second article, by Theelen et al. (2019), also offered a synthesis of previous findings. In this review researchers looked at 15 studies documenting the links between teacher candidates' interpersonal competence, well-being, and computer-based classroom simulations (Theelen et al., 2019). Touching on only individual facets of student engagement, the review concluded that teacher candidates generally reported feeling engaged during the computer-based classroom simulations (Theelen et al., 2019).

Technology and Engagement in Higher Education

Because of the lack of research connecting digital technology and engagement of teacher candidates, researchers have turned to the literature on tech tools and higher education as a foundation for further inquiry. In a literature review of 243 articles citing the use of technology in higher education, Bond et al. (2020) noted that text-based tools were most frequently researched (71.4%), followed by knowledge organization sharing tools (35.7%), multimodal production tools (28.6%), website creation tools and learning software (19%), assessment tools and social networking tools (14.3%) and mobile learning hardware (e.g., iPads) (9.5%).

Data collection in these studies was most frequently conducted through surveys (54.8 %), followed by ability tests (30%), observations (26.2%), document analysis (23.8 %), interviews (16.6%) and focus groups (9.5%) (Bond, et al., 2020). Bond et al. (2020) also found behavior engagement (participation, interaction, involvement, achievement, confidence, assumed responsibility, and study habits) in 90% of reviewed literature to be the most studied dimension of engagement. Further, cognitive engagement (positive interaction with peers and teachers, enjoyment and motivation, interest, enthusiasm, and sense of connectedness) was found in 67 % of the literature (Bond, et al., 2020). Affective engagement (learning from peers, self-regulation, deep learning, critical thinking, and staying on task/focusing) was the focus in 57% of the studies. Finally, 69% of the studies Bond et al (2020) examined looked at multiple types of engagement.

Teacher Candidates & Technology

A wide body of research has documented teacher candidates' and novice teachers' technology use in teaching and learning, with most research noting that, although teacher candidates claim to be fully prepared to use technology in the classroom, few student or novice teachers integrate technology tools into lesson delivery (Batane & Ngwako, 2017). Wilson (2021) encapsulates this body of work (e.g., Hew & Brush, 2018; Howard, 2019; Ritzhaupt et al., 2012) by noting that two types of barriers hinder technology integration: first-order barriers (e.g., access) and second-order barriers (e.g., attitudes, knowledge). Second-order barriers can be influenced through participation in teacher education courses (Liu et al., 2016; Reid, 2014).

Hlas and colleagues (2017) note that pre-service teachers have three opportunities to learn about technology: direct technology instruction during coursework, indirect technology instruction through instructor modeling, and invitations to interact with technology (i.e., prompting preservice teachers to use or tinker with technology). While teacher education courses devoted to technology integration have the potential to influence preservice teachers' own technology integration (Wilson, 2021), researchers (e.g., Puentedura, 2009; Williams et al., 2014; Winke & Goertler,

2008) note that these courses are most often deemed inadequate due to the continuous challenge of exposing teacher candidates to technologies that are ever-changing and utilized for varied instructional purposes.

Conceptual Framework

Four approaches theorize student engagement: the behavioral perspective, the psychological perspective, the sociocultural perspective, and a holistic perspective (Kahu, 2013). The behavioral perspective focuses on the relationship between the instructor's teaching practices and student engagement. The psychological perspective considers engagement to be "varying in intensity and responsive to the environment, suggesting that there is much that can be done to improve engagement" (Kahu, 2013, p. 763). Focusing on the affective facet of engagement, researchers (e.g., Askham, 2008; Furlong et al., 2003) in the psychological perspective highlight the emotional context of learning and the recognition of an individual's expertise (e.g., Fredricks et al., 2004). The sociocultural perspective focuses on the broader social context of teacher candidates' experiences. Scholars within the socio-cultural perspective (e.g., Dall'Alba & Barnacle, 2007) argue that higher education must "engage the whole person: what they know, how they act, and who they are" (p. 689). Finally, the holistic perspective views engagement as both a process and an outcome (Hardy & Bryson, 2010). Embracing the multidimensions of engagement, Kahu (2013) defines the holistic perspective as a "dynamic continuum with different locations—task, classroom, course, institution" (p. 764).

Conceptual Framework of Engagement, Antecedents and Consequences

While the four approaches to student engagement outlined above offer practical insights into the complexities of the construct, a consistent definition of 'student engagement' in higher education has eluded researchers for decades. Kahu (2013) argues that engagement cannot be clearly characterized without parsing the *act* of being engaged from the antecedents and consequences *of* engagement. As shown in Figure 1, Kahu's framework places

the student at the center of engagement, influenced by six elements: sociocultural context, structural and psychosocial influences, engagement, and proximal and distal consequences. Situated within sociocultural influences, the factors of engagement affect one another cyclically through chains of reactions. This perspective of engagement accounts for individuals' lived experiences while still acknowledging contextual factors.

Kahu's (2013) model highlights some of the most immediate influences on engagement, psychosocial, which are impacted by structural influences often beyond instructors' control (such as curriculum, assessment, and campus culture), as well as teacher candidates' "life load, the sum of all the pressures a student has in their life, including university" (Kahu, 2013, p. 767).

Figure 1

Conceptual Framework of Engagement, Antecedents and Consequences
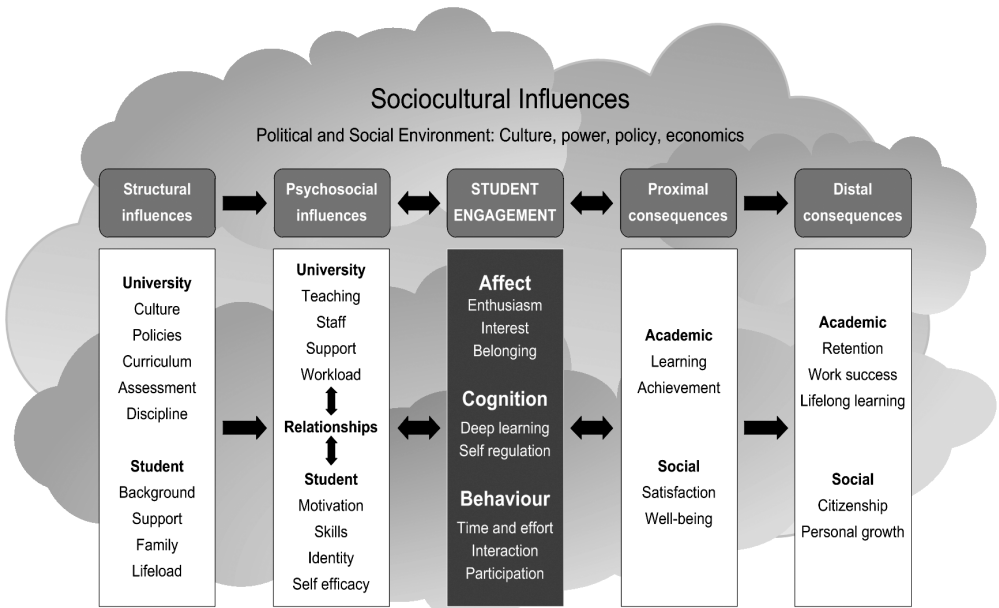
Reprinted with permission from "Framing Student Engagement in Higher Education," by E. R. Kahu, 2013, *Studies in higher education, 38*(5), 758-773 (https://doi.org/10.1080/03075079.2011.598505)

Moving from the left side of the diagram to the right, immediately influencing the student and being influenced by the student are the proximal consequences. With an understanding that "engagement breeds engagement," (p. 767) these influences are bidirectional (Kahu, 2013). Furthest left, the distal consequences illustrate the many outcomes of engagement. And finally, the entire framework is situated within the social, political, and cultural discourses of sociocultural influences. Undoubtedly the antecedents are influenced by the broad context, but as Kahu (2013) has illustrated, so too is every aspect of the student's institutional experience. The sociocultural context also brings power imbalances to the forefront and creates opportunities for discussions of engagement and pathways for change (Mann, 2001).

Methods

As someone deeply committed to using technology with teacher candidates in meaningful and engaging ways, I wanted to know how the digital tools I used in courses with teacher candidates impacted their engagement and subsequent fieldwork, but also more broadly how they experienced technology across university courses. This case study is bound by teacher candidates' experiences with technology during three semesters of the COVID-19 pandemic. Two surveys were administered to understand better the technology tools instructors used during the pandemic, which of those tools teacher candidates found engaging, and if any pedagogies involving the use of tech tools transferred to teacher candidates' lesson planning and teaching. Administered during Finals Week in the 2021 spring semester, 41 of 46 teacher candidates completed the first survey that dug into the digital tools candidates observed in courses during the pandemic, as well as which tools they found most engaging. 27 teacher candidates responded to the second survey, administered in the fall of 2021, documenting how they integrated digital tools into fieldwork lessons and teaching during the pandemic. Table 1 identifies the number of candidates solicited for each survey as compared to how many responded.

Table 1

Survey Participants by Course Format and Instrument

	Course Total	Course Format	Number of Participants Spring 2021	Number of Participants Fall 2021
Course A:	14	Hybrid	13	12
Course B:	15	Face-to-Face	12	7
Course C:	17	Face-to-Face	16	8
Total	46		41	27

Participants

Although this research is broader than a self-study, under-standing teacher candidates' experiences in my own classes was at the forefront of the inquiry. In the fall of 2020, in teaching a HyFlex course with approximately one-third of candidates join-ing class via videoconference, I searched for tools to increase learning, to support engagement, and to enable candidates to communicate when they were unable to see or hear one another. After achieving what I perceived as success with the digital tool Pear Deck, I adopted the technology for use in all three of my courses in spring of 2021. As such, survey participants included teacher candidates from the three courses that I taught in spring 2021, but participants were asked about their experiences with digital tools across all their courses throughout the three semesters.

Courses A and B consisted solely of sophomore students who had applied for admittance into the School of Education at the end of the spring 2021 semester. All the students in Courses A and B also had an intensive five-week field placement at the end of the semester. Conversely, Course C spanned theories and methods of reading instruction from kindergarten to eighth grade without an attached field component (although most, if not all students, par-ticipated in a field placement concurrently with the course or in the following semester). Both sophomore and junior level students were enrolled in course C.

Setting

This study took place at a small, Catholic liberal arts college in the Midwest. With just over 1,900 students, the college has a 13-to-one faculty/student ratio and an average class size of 19. At the time that this study was conducted, there were roughly 300 students in the teacher education program. In fall 2020, the college made a concerted effort to provide faculty with digital tools needed to teach online, hybrid, and HyFlex courses. Zoom was selected and purchased as the videoconferencing tool for all instructors' use with online courses or when students were unable to attend classes face-to-face because of quarantine or illness. Several workshops were provided to instructors to demonstrate how to use Zoom and Zoom features such as breakout rooms. All course instructors were required to attend at least one of the several one-hour sessions. Additionally, the college's Integrated Technology Services (ITS) provided professional development around student engagement in online and hybrid/HyFlex course designs, highlighting the features of the college's Learning Management System, Moodle, as well as Google Forms, Google Slides, Flipgrid, and Socrative. But unlike the Zoom workshops, this professional development was optional, conducted over several weeks in the summer, and required outside work and readings. Consequently, just over 30 percent of instructors participated in these elective professional development sessions.

Instrument

Researchers underscore the importance of qualitative surveys in the exploration of meanings and experiences (Fink, 2003) and note that the goal of a qualitative survey is to understand the "diversity of some topic of interest within a given population" (Jansen, 2010, para. 6). Accordingly, and following Fink's (2003) recommendation regarding the validity of survey research, the questionnaire used in this study was adapted from two already established surveys (Schmidt et al., 2009; Davis, 1989) and employed both Likert-scale and open-ended questions. Survey validity was further verified through a critical review, by scholars in the field of technical, pedagogical, and content knowledge (TPACK) that informed subsequent revisions.

Data and Data Analysis

Data in this study consisted of two rounds of qualitative surveys with follow-up emails for clarification as needed. The first survey was completed anonymously; questions were designed to better understand what technology tools were used in college classes during the pandemic and candidates' experiences with the tools. The survey incorporated a pre-populated list of digital tools based on technologies supported by the college ITS, as well as those found on well-known educator blogs and websites that were easily accessible to instructors through internet searches (e.g., Chauhan, 2018; Eckert, 2020; T Editors, 2021). The second survey consisted of only one open-response question *(What technology tools did you use during field placement, how did you use them, and what was your experience?).*

Aligning with methodological standards for case study research, data analysis consisted of coding student responses into categories or themes. First, grounded, inductive codes were created from the data. During this process in vivo codes were created, whenever possible, as a means of better seeing and articulating patterns across the data (Miles et al., 2014). The codes created (in order of frequency) included: interaction, option, learning style, lecture, purpose, behavioral engagement, instructor barrier and proximal consequence. Two themes were then developed from "the most salient categories" that emerged during coding: engagement and accessibility.

Limitations and Implications for Future Research

Like all research, this study has limitations. First, the sample size of this study was small. As the number of participants in the first survey (n-41) was just under 14 percent of the teacher candidates within the teacher education program, additional research should be conducted to confirm the findings outlined below. Second, because the information was self-reported, it is difficult to know for certain which technologies teacher candidates were exposed to during the pandemic. Undertaking a study with a wider scope of participants (such as all the course instructors in the teacher education program) would have strengthened the implications and illuminated clearer connections. Finally,

the decline in study participants from the first to second survey is problematic. One assumption is that the drop-off may be a result of survey fatigue. Another is that candidates who didn't implement technology during the field placement may have felt as though they had nothing to contribute to the survey question. Consequently, future research should employ larger sample sizes and follow all participants throughout the duration of the field placement.

Findings
Technology Tools Used During the Pandemic

Teacher candidates were asked about the technology tools instructors used during the COVID-19 pandemic (spring 2020 through spring 2021). More specifically, teacher candidates were asked which tools they had used that had not been included in any of their courses before the pandemic. Figure 2 outlines participants' responses. 39 of the 41 teacher candidates noted that Zoom and Zoom breakout rooms were used in their courses during the pandemic. Google Forms and Google Slides were also cited by 37 and 36 teacher candidates respectively, and 31 teacher candidates used Google Jamboard. Conversely, none of the teacher candidates recalled seeing six of the pre-populated survey

Figure 2
Tech Tools Leveraged During the Pandemic
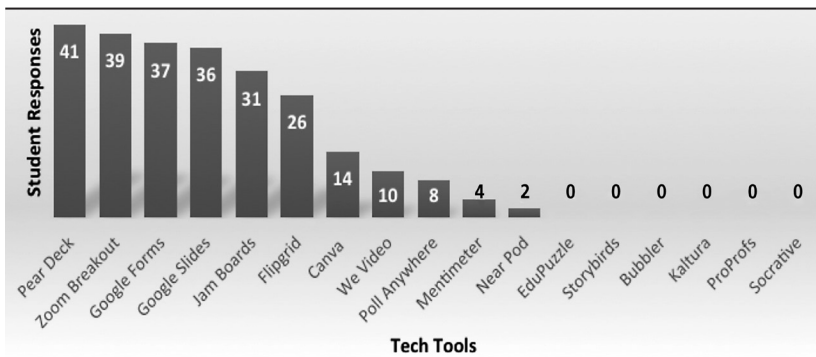
options being implemented in any of their courses during the pandemic (EduPuzzle, Storybirds, Bubbler, Kaltura, ProProfs and Socrative). The survey also listed an "other" option where teacher candidates could write in any technology tool that had been used

in a college course but was not listed on the survey; however, none of the participating teacher candidates utilized this option.

Teacher Candidates' Views of Tools to Keep and Toss

In response to an open-ended question, teacher candidates overwhelmingly (26 of 41 teacher candidates) cited Pear Deck as a tool that instructors should continue to use after the pandemic. Comments that specifically mentioned the interactivity of the tool, such as "Pear Deck has been super helpful to use as an interactive tool," and "I liked the interactive online elements like Pear Deck and other interactive activities" were found in eight of the 26 comments. The convenience of Pear Deck was also noted:

> I really liked the Pear Deck during class because it was easy to get to links and understand what the teacher was asking of us because it was right on our screen. I also thought it was really engaging and a useful tool for teachers.

These comments highlight two prevalent features that Pear Deck offers: student engagement through interactive questions and the ability to embed links into the presentation.

Teacher candidates also noted that they hoped instructors would continue to utilize hybrid and HyFlex methods of instruction where they could attend class via Zoom if ill or needing to travel (See Figure 3). Some teacher candidates also mentioned that the option to hold class via videoconference was important because "sometimes we really don't need to come to class." In addition, they appreciated "having at least one day to Zoom

Figure 3
Tools to Keep
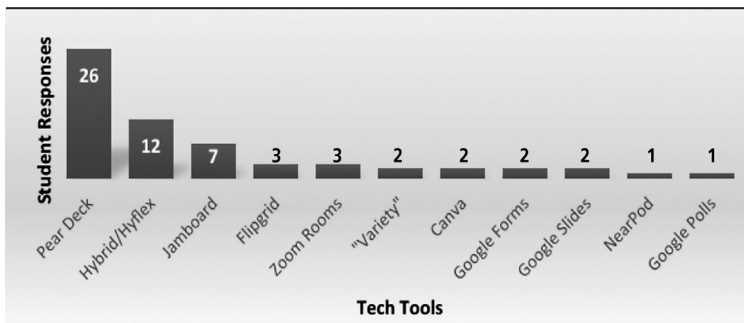
into class." Comparatively, teacher candidates had only a small number of suggestions as to which technology tools they hoped instructors would eliminate in the fall of 2021 and/or after the pandemic. Interestingly, several of the tools teacher candidates hoped to see used in future courses were also the same tools other teacher candidates recommended be eliminated. Comments such as "I am so over Zoom breakout rooms," "Zoom lectures," and "I am so tired of learning through a computer screen" were common in this portion of the survey with 10 students specifically citing Zoom. Additionally, six teacher candidates noted that they wanted instructors to stop lecturing or be more interactive during class meetings. "LECTURING. It was so much worse on Zoom, too, because I would fully lose my ability to focus on the Zoom call" and "I feel like a lot of teachers used Google Slides this year and once Covid is done I would like to see less [of them] and be more interactive" are examples of these responses. Finally, 10 teacher candidates stated that they didn't want any technology tools to be eliminated because "they are all great options" and "implementing certain tools into face-to-face classes makes things exciting."

Engagement and Accessibility

When asked if they had any "additional comments" regarding "technology use and teaching practices during the pandemic," 17 responses were recorded. These comments were coded into two categories: engagement and accessibility.

Engagement

Teacher candidates were more appreciative and accepting of a new technology tool and pedagogy when they understood the purpose of its use and found it engaging. One student noted, "I think that the use of technology is great in the classroom as long as it increases student engagement and learning." And another stated, "[The tech tools] all had a purpose, and I think implementing certain tools into a person's classroom makes things exciting." Conversely, teacher candidates were frustrated when instructors tried to implement tools that they were not well-versed in, or when there were overall issues with technology. Responses such as, "There was a lot of time wasted with using technology,

and I do not like that," and "Certain professors need to be better informed on how to use technology" were just as prevalent.

Accessibility

While teacher candidates explicitly stated that they do not want to attend lectures via videoconference, they appreciated the accessibility Zoom offered to them during Covid. Noting the inequities in access to education, even at private liberal arts colleges, one student wrote:

> I think that the situation we are in has forced all schools to make online learning more obtainable for everyone. I hope to see this continue in the future as an option for students who need/prefer this kind of education.

Further, as noted above and highlighted in Figure 2, teacher candidates found many components of courses to be more accessible during the pandemic. In addition to the ability to Zoom into class if they were ill or had other extenuating circumstances that prohibited them from attending class face-to-face, access to course materials was also a prominent category of student comments. One student responded:

> I appreciated having easier access to slides and being able to look back. I also liked when professors recorded their online classes so if I were to not pay attention well, I could look back and make sure I had gained the information.

All in all, the increased accessibility during the pandemic was the most prevalent theme in student responses throughout the survey.

Transfer to Teaching

27 teacher candidates participated in an open response survey asking whether and how they used technology while in their field placement. Two of the 27 candidates' responses indicated that they used minimal technology while teaching, mainly because their cooperating teachers did not use technology, or they did not know how they could have integrated technology to improve the lesson. For example, when teaching a high school biology lesson, one candidate employed a jigsaw and asked each small group of students to research one function of the digestive system. As the groups presented their work, the candidate used a document

camera to add the corresponding organ to a body outline. In her response to the survey, the candidate stated:

It went well. Nothing went wrong and there was nothing I felt needed to be changed, so I would do it again. However, I think it could be even better if I used different technology. I am just not sure exactly what that would be.

Importantly, this teacher candidate neglected to mention that the groups incorporated short videos and diagrams from the internet in their presentations. Similarly, another candidate noted that she used minimal technology during her field placement, most of which were pre-created quiz games using the online software Booklet. While the candidate was able to implement the games with the students, she was not afforded the opportunity to create any original games (inputting the questions herself or selecting the type of game students would play).

Sixteen candidates noted that they only employed the technology that their cooperating teacher used. Most prominently, 12 of the 16 reported using a SmartBoard, and four teacher candidates noted the use of Zoom or Google Classroom. Seven of these candidates commented that they would have liked to use other technologies, but they didn't "think it would work with [the] students" or they "didn't want to do anything [the] cooperating teacher didn't do." Teacher candidates who were concerned the tech tools wouldn't "work" with their students most often noted they were in primary grade classrooms.

Conversely, nine teacher candidates reported using technology in their teaching that they experienced in college courses during the pandemic. One candidate noted how she used Google Jam Board to record her kindergarteners' ideas and felt as though the lesson went well because "it was something different that my teacher hadn't used." Finally, the remaining eight candidates identified using Pear Deck in their field placements. All eight candidates noted that Pear Deck had not been used previously by their cooperating teacher and that they had not experienced Pear Deck before the pandemic. One candidate explained:

I used Pear Deck in one of my lessons. The students loved it. It got them engaged in the lesson because many of the lessons my mentor created did not use technology. The

Pear Deck was used to have students answer discussion questions while reading a short story. This allowed the class to have an in-person discussion for some of the questions and others answered on the Pear Deck to compare students' answers. The Pear Deck was also very helpful for the exit ticket to check on students' understanding of the lesson. I will be using it again. I think the students loved this platform and felt engaged.

Another candidate who used Pear Deck noted, "I liked being able to use the 'write a response' option to ask students to check their knowledge or reflect on what we have gone over…I will definitely use Pear Deck again."

Discussion and Implications
Teacher Candidates' Views of Tools to Keep and Toss

Overall, the findings regarding the technology tools used during the pandemic are not surprising, especially considering the campus-wide rollout of Zoom at the outset of the fall 2020 semester. This data also coincides with national trends, as 77% of 855 teachers surveyed reported that their use of videoconferencing tools grew "A LOT" stronger during the pandemic (Klein, 2021). The findings of my study suggest that, although only a small percentage of the faculty participated in the summer course, instructors (1) employed the tools highlighted in the course, (2) taught other instructors how to use the tools, and/or (3) most faculty already knew how to use the highlighted tools. Additionally, data indicates that instructors did not seek out new or additional technologies beyond what had been traditionally used/suggested at the college. This, too, is not surprising when the overwhelming number of technology tools available to instructors are considered. This data does suggest that course instructors tended to use only the tools that were supported (through purchase, professional development, or both) by the college.

Engagement and Accessibility

Study findings show that teacher candidates appreciated the technology tools employed by instructors during the pandemic and hope to continue encountering these tools, when integrated

meaningfully, in their future coursework. Of particular interest is the stark contrast between what students appreciated (variety, interaction, Pear Deck) and what they did not want to see continue (lecturing). In outlining the andragogical model of learning, Knowles (1984) argued, "For the most part, adults do not learn for the sake of learning; they learn in order to be able to perform a task, solve a problem or live in a more satisfying way" (p. 12). Knowles' (1984) theory coincides with findings in this study in that teacher candidates acknowledged and appreciated that they were not always "ready" (Knowles, 1984, p. 8, 12) to learn material at the time it was presented. Teacher candidates wanted access to information so that they could retrieve it when needed (e.g., when they are asked to perform a task using the information). Scholars of student engagement have also documented similar findings. Llorens et al. (2007), for example, noted that when higher education students believe that they have access to the resources they need to be successful, their self-efficacy also grows, leading to increased engagement.

Furthermore, candidates unequivocally appreciated the ability to attend class via videoconferencing, but only on *their* terms. While preferring to meet face-to-face, candidates recognized that not every class meeting needs to be in person. Candidates also wanted the option to attend classes via videoconference when unable to physically attend a face-to-face meeting. In sum, these findings carve out distinctive recommendations for course instructors. First, instructors should examine their pedagogies and determine where they fall on the continuum between teacher-centered and student-centered course design. While not every class meeting needs to be completely student-centered, instructors must give up their time on the stage and allow the cognitive load to shift to students. One approach to achieving this end is to ensure that courses are designed to require teacher candidates to use the information presented to them through passive learning. Moreover, engagement strategies, specifically technology tools, must be integrated into courses *meaningfully*. Thus, tools need to be carefully selected to meet the course objectives—which also need to be clearly communicated to candidates. Selection of digital tools should be done to meet multiple influences of student

engagement (Kahu, 2013) and not simply as a quick gimmick to momentarily gain attention. Additionally, and while seemingly unrelated, instructors must organize class materials so that they are continually accessible throughout the duration of the course. Finally, instructors may want to consider allowing students to attend class via videoconference when they are unable to physically attend class.

Transfer to Teaching

Nine of the 27 teacher candidates' survey responses indicated that they only employed technology in their own lessons that they had experienced through indirect instruction during coursework (Hlas et al., 2017). This finding is anticipated, as the teacher education program that the candidates are enrolled in does not offer a specific course for direct instruction of digital tools. Interestingly though, one student noted that she used a new digital tool introduced to her by her cooperating teacher; the third way in which Hlas and colleagues (2017) suggest candidates can learn the use of digital tools. However, this candidate did not experience the "tinkering" aspect of familiarizing oneself with digital tools because of the reliance on stock material. Although the tool was introduced to the candidate, giving her familiarity with how to implement it with children and many capacities and functions of the program, additional time would need to be spent teaching herself other components to be proficient in its application.

When collectively analyzing all 27 teacher candidates' responses in relation to Kahu's (2013) framework, it is easy to deduce that, even without direct instruction in the multifaceted perspectives of student engagement, candidates seemingly understood many of the complexities associated with the construct. This is evident in the multiple influences that candidates noted when responding to the survey question. Although behavioral engagement was noted in 20 surveys, candidates also touched upon psychosocial influences of relationships and individual student motivation, as well as the proximal consequences of learning and achievement (Kahu, 2013). While further research is needed in this area, this finding leaves room to consider if and how teacher candidates' instructional design would expand if they had

a deeper understanding of the influences on student engagement.

Moreover, when taken collectively, these findings present two implications. First, as researchers have documented, teacher candidates are most likely to integrate technology into their teaching if they have experienced the tools themselves (Blackfish et al., 2019). None of the 27 participants of the second survey sought out an unfamiliar tech tool to use in their field placement. This is especially compelling when considering the response from the teacher candidate who taught the biology lesson on digestion. The candidate implied within her response that she wanted to integrate technology but didn't know how or where to find a tool that would fit her needs. Moreover, since nine candidates implemented tools that they experienced in their college courses, this research echoes previous work that calls for the use of digital tools, widely, in teacher education classrooms. A second implication from this research is the suggestion that teacher candidates are more likely to integrate tech tools into their teaching if they found their experience with the tool to be engaging. While this suggestion needs further exploration, as it was beyond the scope of this study, the correlation between the tools candidates reported as being engaging, and the tools used by candidates in their own instruction is difficult to ignore.

Conclusion

The purpose of this study was to understand better which digital tools college instructors employed during the pandemic, teacher candidates' responses to the use of the tools, and whether teacher candidates integrated the tools into their instructional plans. Data indicates that Zoom and Zoom breakout rooms were the most widespread tech tool employed by instructors, followed by Google Forms, Google Slides, Google Jam Boards and Flipgrid, respectively. Notably, these tools were all well supported by the college's ITS department through purchase, workshops, and support. On the other hand, Pear Deck was cited by candidates as the tool they would most like to see instructors continue to use after the pandemic, as well as the flexibility in course design (hybrid models or the option to attend via videoconference), and easy access to course material. Conversely, teacher

candidates overwhelmingly wanted to see instructors rely less on lecture styles of teaching (especially over videoconferencing) and the option to attend class face-to-face. Moreover, study data echoes previous research with findings that indicate teacher candidates employ only those digital tools that they experienced in college courses themselves or are introduced to by their cooperating teacher. And finally, while further research is needed, study findings hint that teacher candidates are more likely to integrate technology tools into their instruction if they found the tools to be engaging themselves.

In sum, the findings from this study, coupled with the bodies of work in related fields and understandings of student engagement models, provide college and university instructors broadly, and teacher educators specifically, with several takeaways and next steps regarding instruction. First, this study suggests that if colleges and universities want instructors to use specific technology tools, they must provide systematic professional development and support. Teacher candidates valued the integration of digital tools if they found the tools to be easy to use, engaging, and beneficial to the objectives of the course. Instructors, therefore, need to be strategic and explicit about their use of digital tools, as well as proficient in the use of them with candidates. Instructors should also continue to be flexible in course design by providing options for videoconferencing and easy access to course materials. Finally, instructors in teacher education must demonstrate the meaningful integration of digital tools, as these are the technologies candidates are most likely to use in their lesson design.

End Notes

[1]Blended courses involve face-to-face meetings along with online materials and activities. In flipped courses, instructors support learning basic knowledge through pre-recorded videos that students view prior to attending class then expand upon that knowledge during the course meeting. Hybrid courses are like blended courses, but the online meetings are intended to replace some of the face-to-face meetings. Finally, HyFlex courses are those that provide students with the option to attend class face-to-face or online. *(page 2)*

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Virtual Learning Environments and a Needs Assessment of K–12 Teachers

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Abstract

During the COVID-19 emergency pivot to virtual learning environments, the researchers sought to understand mentors' and teacher candidates' experiences in K–12 schools so that they could offer improved training and support. We surveyed 60 mentor teachers' and 92 teacher candidates' perceptions of preparedness for a virtual learning environment (VLE), confidence in creating an effective VLE, obstacles involved in a VLE, and strategies for building community in an online environment. The survey was administered in November 2020. Both teacher candidates and mentor teachers were fully immersed in the virtual learning environment. In the fall, participants felt they were much more confident and equipped to handle the VLE technology than when they had been abruptly forced to transition in the spring quarter of the prior school year. However, despite the various strategies used to build community, the participants noted student engagement as the biggest challenge in a VLE.

Keywords: online learning, virtual learning environment, student engagement, technology

Virtual Learning Environments and a
Needs Assessment of K-12 Teachers

Educators, policy makers, parents, students, and administrators around the world pivoted to distance learning settings in the wake of the COVID-19 global pandemic. Many school systems chose a virtual learning environment (VLE) despite their lack of familiarity with using online platforms, lack of online curriculum, and unestablished routines for virtual teaching and learning. With a majority of schools shutting down in-person education starting in the spring of 2020, many states and local educational agencies began to plan for VLEs—a course of study in a web-based platform—for the opening of the school year in fall 2020. The VLEs that emerged from the global pandemic were of an emergency nature in the spring, and thus cannot be seen as identical to other traditional VLEs or blended learning environments (Aguliera & Nightingale-Lee, 2020; Trust & Whalen, 2020; Whittle et al., 2020). Even with more planning and preparation for VLEs for the reopening of schools in the fall of 2020, emergency characteristics remained. For instance, with an emergency VLE, there are added variables in the mix such as the presence of trauma (both with students and educators), inadequate internet connections, lack of appropriate technology, fewer trained stakeholders, childcare issues, economic constraints, and other destabilizing factors. Despite added training and preparation, many educators and families would not have chosen a VLE environment had there not been a pandemic. In this paper, we discuss the nature of the emergency VLE pivot during the COVID-19 global pandemic shortly after the fall 2020 re-opening of schools and its impact on teacher candidates and their mentor teachers.

A successful VLE in education depends upon how well teachers and their students have been trained to effectively utilize and engage the resources on hand and their motivation to do so. The shift from traditional, on-campus classes to online classes has been associated with many concerning developments, including a rise in student mental health concerns (Murata et al., 2021), lack of student achievement and engagement (Dorn et al., 2020), and an overwhelmed teacher force (Trust & Whalen, 2020).

As three teacher educators at a liberal arts university, we

knew teacher candidates needed support pivoting during this emergency transition to online teaching. We built modules in our programs that supported teacher candidates in prioritizing general learning principles, available school technologies, and familiarity with the International Society for Technology in Education (ISTE) standards. The online teaching modules were also offered as a professional development course for practicing teachers. Teachers need to develop general technological competencies so that they can be flexible, adaptive, and creative problem solvers for learning purposes, and not users of technology for technology's sake (Henriksen et al., 2019; Trust & Whalen, 2020).

The researchers surveyed teacher candidates and their mentor teachers in November of 2020 with the intent to gather information on perceptions of their preparedness, confidence with technology, obstacles, and strategies for building community in a VLE (see Appendix: VLE and Needs Assessment). During this emergency pivot, we wanted to understand mentors' and teacher candidates' experiences in K-12 schools so that we could provide more tailored training and support. Four major research questions guided our inquiry:

- How supported do teacher candidates and mentor teachers feel with online teaching?
- How confident do teacher candidates and mentors feel about teaching online?
- What are some struggles mentors and teacher candidates are experiencing with respect to VLEs?
- What are some ways mentors and teacher candidates are building community online?

Literature Review
Virtual Learning Environment (VLE)

Prior to the pandemic, distance learning was designated as a norm for many colleges and universities and less common for K-12 students. About 21% of public K-12 schools offered at least one online course before COVID-19 (National Center Educational Statistics [NCES], 2021). By mid-pandemic, February 2021, 82% of K-12 schools offered remote instruction (NCES, 2021). In 2004, 65% of universities offering graduate face-to-face courses

also offered graduate courses online (Allen & Seaman, 2005). Kim and Bonk (2006) predicted the trend of online teaching and learning in higher education. Based on data collected in early 2004, 87% of their respondents reported that their institutions offered online courses, and 70% of them had taught online courses. At the time of the survey, 27% of the participants predicted a dramatic rise in online learning and teaching. In fact, as of fall 2016, 31.6% were taking at least one course remotely (Seaman et al., 2019); more recently, in the 2019-20 school year, that number increased to 51.8% (Smaller, 2021). Although this trend toward online instruction may have been true over the last few years, studies had also found persistent inconsistency and ineffectiveness in implementation (Bernard et al., 2014). With the extent of online learning in a VLE significantly increased in 2020 due to the onset of COVID-19, one may raise the question of how well prepared the instructors were when compelled to transition from a face-to-face environment to a VLE.

Over the past decades, limited research exists that measures university students' and their instructors' perceptions about online learning and teaching. Studies such as Holzweiss et al. (2014) found that online graduate students learned best when they had opportunities to think critically in assignments and had access to various instructional technologies. Furthermore, they wanted to be able to interact with their peers and instructors. Fedynich et al. (2015) support such findings in their own study. They found that interaction between students and with the instructor produced overall satisfaction with the online students. Additionally, a vast majority of the students in their sample (93.17%) agreed or strongly agreed that "students have to be self-motivated to be successful in online programs" (p. 5).

In a recent study, researchers explored the impact of the university VLEs during the pandemic (Martin et al., 2021). The researchers examined the students' perception of the pedagogical model adopted in the VLE during the second semester of 2019-20 school year when schools transitioned rapidly to online learning. During this early transition period, students reported dissatisfaction with their teachers regarding their knowledge of and competence with technological resources (Martin et al., 2021).

Teacher Mindset

Technology know-how is a necessary but insufficient skill for effectively teaching in a VLE (Dorner & Kumar, 2017; Martin et al., 2021). Teacher confidence, creativity, culturally sustaining practices, and open mindset are other crucial factors, due to the rapidly changing nature of technology and the variety of systems used within schools. Henriksen et al. (2019) proposed a pedagogical approach called a creatively focused technology fluent (CFTF) mindset. They advocated for building teachers' self-efficacy with digital technologies, rather than a narrow tool-centered approach. Henriksen et al. (2019) argued that a CFTF mindset helps teachers build their own technological self-efficacy. This confidence transfers to new and unfamiliar technologies, as well as to accustomed tools.

The two fundamental parts of the proposed CFTF mindset are creativity and technology. In this framework, the ultimate goal is to promote the educator's *mindset*. Traits of the creative side of CFTF mindset include intellectual risk-taking, flexibility, and openness to the new. *Technology fluency* refers to the integration of content, pedagogy, and technology. Since the CFTF framework was published prior to the pandemic, it did not take the emergency global transition to VLEs into account. Arguably, there is more technological expertise and tool-centric know-how demanded of teachers during the emergency VLE scenario than in any prior situation. The Martin et al. (2021) study showed students were dissatisfied with their instructors' technological abilities during the early months of the pandemic. Although much of the online curriculum and learning management systems in K-12 schools are determined by overarching systems, teachers still retain much of the quotidian implementation of their VLEs (Henriksen et al., 2019).

Attention has been focused on how to provide culturally responsive-sustaining practices during the emergency VLE scenario (New York University [NYU] Metro Center, 2020). Educators need to be responsive to students' lived experiences, both at the individual and community level (NYU Metro Center, 2020). In culturally sustaining VLEs, educators are encouraged to have flexibility, compassion, and creativity. This type of

education integrates arts, culture, and creativity into students' lessons, which maps well onto the CFTF mindset. Examples of providing a culturally sustaining VLE experience include offering digital mindfulness activities, translation of online lessons and family communications, and providing resources and access to culturally sustaining texts (books, stories, media) either digitally or at local neighborhood sites. Cooking at home can infuse science lessons; family photos can launch historical inquiry. In VLEs, creative and compassionate teachers can brainstorm ways of integrating the technology with the students' communities and home lives. Educators need to consider students' cultural and identity influences as well as family preparedness to learn in a VLE (NYU Metro Center, 2020). Minero (2020) suggested that schools and teachers proactively reach out to families and onboard them to technological systems. Murata et al. (2021) suggested that teachers can minimize loneliness and mental anxieties exacerbated by the pandemic by establishing everyday routines for students, practicing mindfulness activities, and creating a safe space for students to talk about their thoughts. Stoltfus (2020) encouraged teachers to build remote communities that foster belonging and connectedness, such as using routines to inquire about students' concerns.

Engagement and Community Building

In a world of constant distraction, young people have access to streaming video, social media, and Google at their fingertips almost all the time. Therefore, educators have a tough job to keep their students engaged. Furthermore, educators faced even greater challenges in keeping students engaged as the world shifted to VLEs. Districts scrambled to ensure that all students have equipment, internet access, and technology to participate in online classes. Without the same level of supervision and coaching, self-regulation with technology tools became a considerable challenge for students. Many districts did not require students to turn on cameras for privacy concerns, so teachers had very little to go on to know if students were even in the room and participating. While districts pieced together new schedules and online protocols, some teachers struggled with reorganizing their

face-to-face classes into an online format. When teachers do not state clear expectations around online instruction, students become less motivated or find it difficult to engage in learning (Dennen, 2005). Difficulties with student engagement in asynchronous online discussions have been identified as pervasive concerns (Hara et al., 2000, Hew et al., 2010). Indifference and boredom (Xie et al., 2011), low participation (Thomas, 2002), and superficial discussions (Hew et al., 2010) have been commonly linked with low student engagement.

It is important to note that engagement is not the same thing as participation. Abdulla (2021) wrote, "students can participate in learning without truly being engaged. Typically, this occurs when students experience more passive participation as opposed to active participation." Instructors need to put practices in place to validate student learning, celebrate accomplishments, and build community. Meyers (2014) found that successful teachers in VLEs increase engagement by giving students active learning options, stating clear learning objectives, providing context for learning, offering tips for self-regulation in online learning, and evaluating online tools regularly. Moreover, in order for academics and engagement to fall into place in both virtual and face-to-face classrooms, students need to know that teachers care about them, and they need to be able to express themselves socially and emotionally (McMahon, 2020).

Methodology

The purpose of this study was to examine the level of support teacher candidates and mentor teachers received at the start of the 2020-21 school year as they transitioned to a virtual learning environment. The researchers sought to identify any obstacles teacher candidates and mentor teachers encountered as they attempted to build an online community. Additionally, the investigators wanted to better understand what tools teachers were using and how the faculty and university supervisors in the teacher education program might modify their program offerings to further support them.

Participants

The investigators collected data from 92 out of 98 teacher candidates who completed a survey as an optional assignment in one of their fall courses. It is noteworthy to disclose that the investigators were the instructors of the courses, and one was the director of field placement. Responses were voluntary and anonymous. Students' participation or non-participation did not have any impact on their course grades. Additionally, 60 out of 140 mentor teachers participated in the survey. They were offered a chance to win a $25 gift card if they were willing to include their name in the drawing. Each mentor teacher who self-reported that they completed the survey had a 1 in 30 chance of winning a gift card.

Of the 92 teacher candidates surveyed, 31 taught at an elementary level, 20 at a middle school level and 41 at a high school level. Furthermore, 21 mentor teachers taught elementary, 14 taught middle, and 25 taught high school. For the purpose of this study, elementary level was identified as kindergarten through 5th grade, middle school was 6th through 8th grade and high school was 9th through 12th grade. Table 1 illustrates the distribution of the grade levels taught by the mentor teachers and teacher candidates.

Table 1
Grade levels and endorsements

Discipline	Mentor	Teacher Candidate
Kindergarten	3	3
1st Grade		3
2nd Grade		2
3rd Grade	1	
4th Grade	3	1
5th Frade	1	
Multiple Grade Levels	5	7
Special Education	8	14
English Language	6	5
Social Studies	7	10
Foreign Language	2	1
Mathematics	6	9
Science	3	10
Physical Education	5	13
Visual Arts	3	7
Performing Arts	2	3
Multiple Disciplines	4	6

Data Collection and Analysis

The survey titled *Virtual Learning Environment (VLE) and Needs Assessment for K-12 Teaching* (see Appendix) was crafted by the investigators of this study and reviewed by various faculty for reliability purposes. The intent for the survey was to gather information generally regarding the VLE landscape in Washington schools, but also specifically in schools who are hosting the teacher candidates from the teacher education program affiliated with the investigators of this study. It consisted of 21 multiple choice questions and 5 free responses. The survey was distributed to the participants using Microsoft Forms. Data was collected anonymously. Teacher candidates were asked to complete the survey at the end of Week 7 of a 10-week quarter in their course on professional issues. This week was chosen for two reasons; by the end of the 7th week, the candidates would have completed two months of student teaching in VLE, and they would have been exposed to various technological teaching strategies from both the course and their teaching experience. The mentor teachers were invited to complete the survey after a mentor training which occurred at the end of the fall quarter. To ensure every mentor teacher was able to participate, the survey was sent via the mentor newsletter and an email distribution list.

Data collected were both quantitative and qualitative. The researchers generated descriptive statistics for the 21 quantitative items. For the remaining 5 free responses, the researchers analyzed and coded for themes.

Results

In research question one, participants reported how well they were supported with online teaching. With respect to administrative support (district or building) a large majority of respondents 105 of 152 (69%) reported feeling "some" or "wonderful" support from their administration (Figure 1). An even larger majority, 121 of 152 (almost 80%) reported support from their specific team (Figure 2).

The investigators sought to examine how the training and support both the teacher candidates and mentor teachers received from the teacher education program were utilized. Table 2 below

Figure 1
Item 11: If you are teaching online, how would you rate your training and support to start the year online from your administration (district or building)?
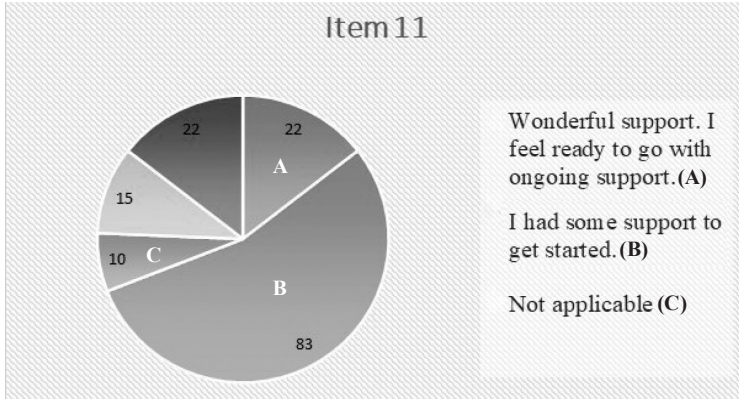
Figure 2
Item 12: If you are teaching online, how would you rate your training and support with your own grade level teams (e.g., 3rd grade), department (e.g,. math department) or professional learning community?
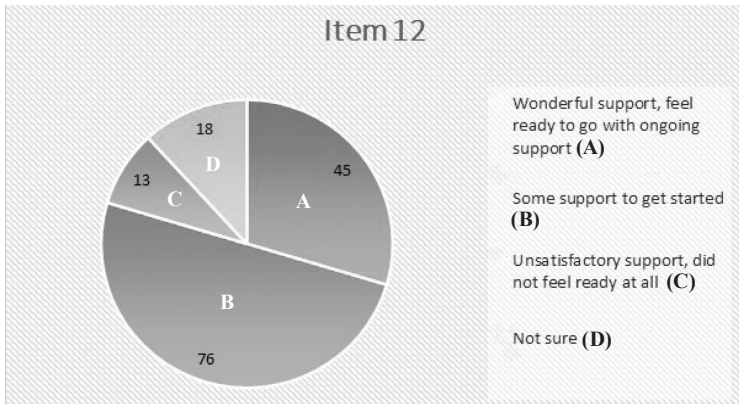
provides a description. Comparatively, Table 3 offers a description on how the participants made use of their training and support offered by the school district.

Table 2

Item 13: Of the online training and support that you received from the university, which best describes the focus of the trainings?

Responses	Frequency (Mentors)	Frequency (Student Teachers)
A blend of both tool-centric and creativity/technology based	5	38
Creativity and technology based—General mindsets and principles for using technology, but not focusing on specific tool training.	12	42
Tool-centric—This is how you can use certain tools, such as Zoom or Canvas.	1	6
Not applicable	42	6

Table 3

Item 14: Of the online training and support that you received from your school system (e.g., school or district), which best describes the focus of the trainings?

Responses	Frequency (Mentors)	Frequency (Student Teachers)
A blend of both tool-centric and creativity/technology based	32	38
Creativity and technology based—General mindsets and principles for using technology, but not focusing on specific tool training.	3	8
Tool-centric—This is how you can use certain tools, such as Zoom or Canvas.	21	28
Not applicable	4	18

In research question two, the teacher candidates and mentor teachers compared their level of confidence about teaching in a VLE prior to COVID 19 closures (February and earlier) and during the transition at the time of the survey (October/November 2020). Figure 3 shows this comparison. Prior to COVID closures, 73 out of 152 participants either felt extremely or somewhat confident and at the time of the survey, the number increased

to 130. Furthermore, compared to the 41 participants who felt somewhat or extremely not confident, the number decreased to only 8 by October/November 2020. Figure 4 further breaks down the data by comparing the mentor teachers and teacher candidates. A theme that arose from the data suggested that those who felt extremely unconfident prior to the closures started feeling somewhat confident a few months later at the time the survey was administered. Interestingly, many of these participants also rated the level of support they received as unsatisfactory.

Figure 3

Items 16 & 17: How confident were you with technology for teaching purposes prior to COVID 19 closures (February 2020 and earlier) and right now (October/November 2020)?
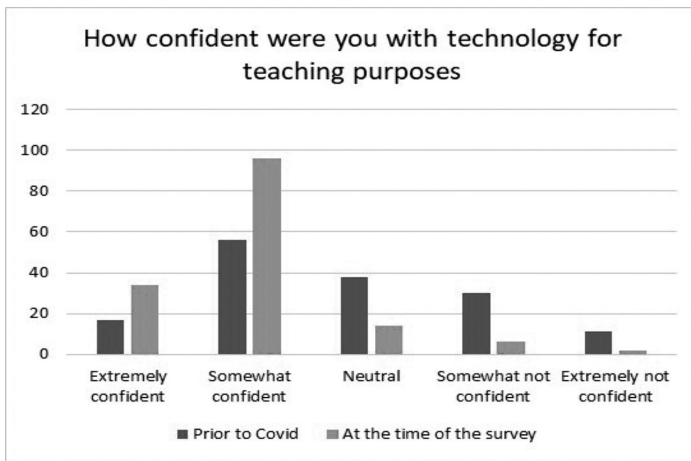
Research question three examined mentor teachers and teacher candidates' biggest obstacles with respect to online instruction. Earlier in the survey, teachers were asked to describe their VLE scenarios, such as ability to use breakout rooms during synchronous class (Item 7), school expectations of students' use of cameras during synchronous class (Item 8), and teacher location (Item 9). From the data, a large majority of teachers reported being able to use breakout rooms (136 of 145 or 94%); schools encouraged or allowed student camera use, but did not require it (133 of 144 or 92%); and teachers could choose their own location for teaching either on-site or elsewhere (120 of 148 or 81%). Ten of 144 (7%) respondents reported student camera use during

synchronous class as required. Six of 148 (4%) teachers were required to teach on-site.

Figure 4

Items 16 & 17: How confident were you with technology for teaching purposes prior to COVID 19 closures (February 2020 and earlier) and right now (October/November 2020)?
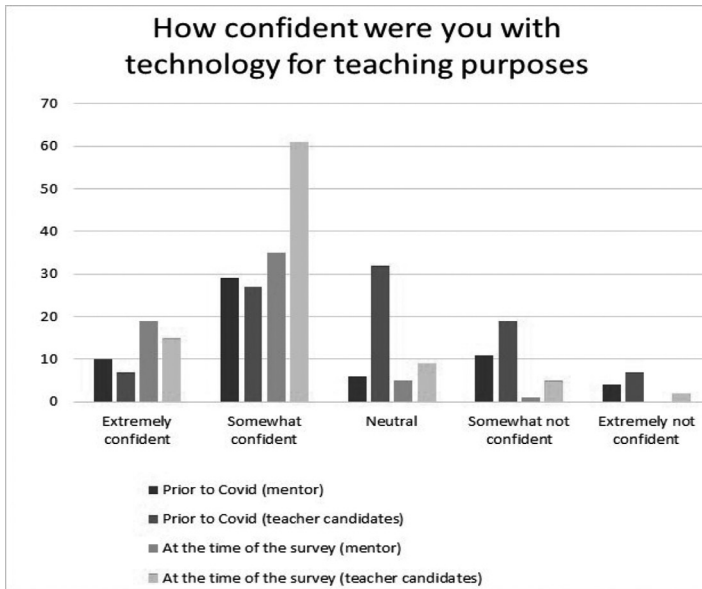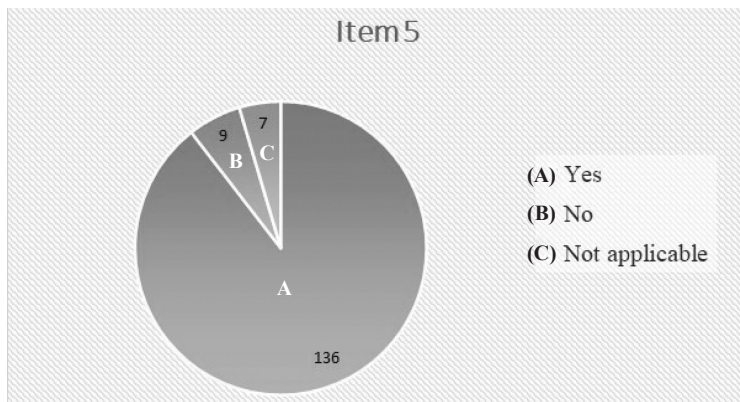

Figure 5

Item 7: Is your district allowing breakout rooms in synchronous classes (e.g. Zoom, Google Meet, Microsoft Teams)?

In survey item 21 regarding VLE obstacles, choices were provided for participants to select in addition to providing their own responses. Table 4 for item 21 shows that the most common obstacle came from student engagement. Student connectivity problems, not having a suitable curriculum for online learning, and student hardware/software issues were also identified as obstacles. Below are some free responses to "other" obstacles the participants noted.

- "I wouldn't call it engagement, as all our students show up every day and participate, but more that it's hard for students focus [sic] and feel connected to school over a computer." (Teacher candidate)
- "Not enough teacher and student instructional time." (Teacher candidate)
- "Getting students/parents to choose to log in and attend." (Teacher candidate)
- "Too many distractions at home (pets, siblings, parents working)" (Mentor)

Table 4
Item 21: What do you see as the main obstacle(s) to providing quality VLE instruction?

Obstacle	Total	Percent
Student engagement	116	76%
Students' connectivity (Internet access)	75	49%
Curriculum suited to online format	55	36%
Students' hardware and/or software	40	26%
Teaching connectivity (Internet access)	30	20%
Student confidence in technology	30	20%
Teacher confidence in technology	28	18%
Teacher hardware and/or software	21	14%
Other (optional fill-in)	17	11%

The investigators compared the video policies of teachers' building sites from item #8 with respondents' answers to their main obstacles, item #21, to see if video policy appeared to have an association with the obstacle of student engagement. The results can be seen in Table 5. Teachers who reported video cameras as required during synchronous class (n = 10) were the

least likely to report student engagement as a main obstacle. Sixty percent of those who reported a *required* camera policy, named engagement as a main obstacle compared with 82.5% of teachers who reported video usage as encouraged, but not required.

Table 5

Video Policy and Listing Student Engagement as a Main Obstacle

Video Policy*	Obstacle	Not Obstacle	Total
Encouraged, but not required	85(82.5%)	18 (17.5%)	103
Student preference	20 (66.7%)	10 (33.3%)	30
Video camera required	6 (60%)	4 (40%)	10
Video camera not allowed	1 (100%)	0 (0)%	1
Total	112 (77.7%)	32 (24%)	144

Note: Respondents who marked "not applicable" for item #8 on video policy are not included.

The survey included items regarding the technological tools teachers were using to deliver their VLEs. Item 22 was open-ended, "Provide some examples of teaching tools you are using for instruction". In total, the respondents mentioned 58 different tools. The most commonly named tools with ten or more mentions were Kahoot (60), Google (27), Khan Academy (23), Padlet (21), FlipGrid (17), Pear Deck (14), YouTube (13), Seesaw (11), NearPod (11), and Quizlet (10).

Item 23 on the survey asked participants, "What online teaching strategy/tool are you struggling with and need more support on?" The most common answer involved support for a specific technological tool or strategy (65 of 152). Of those 65 responses, 21 different technology tools were indicated, with facilitation of breakout rooms in Microsoft Teams and Zoom leading the list. Strategies for student engagement was the second-most cited struggle, garnering 14% of the requests for further support (or 16 mentions).

Survey item #25 asked, "Is there anything else you would like to share in regard to pivoting to online learning and teaching?" We saw several themes emerge around teacher exhaustion and student mental health concerns along with some positive benefits found in online teaching and learning. Some of these themes are represented in the comments from teacher candidates and mentors below:

- "It is exhausting mentally. Planning and instruction take way longer than in person." *(High School Teacher Candidate)*
- "It's first-year teaching all over again." *(High School Mentor Teacher)*
- "The lack of feedback is the biggest challenge. Hard to be sure that students are all present. Zoom and Teams are not specifically designed with classroom monitoring and engagement in mind—tools such as these need improvements to better emulate the live class experience with real-time feedback between students and teachers." *(Middle School Teacher Candidate)*
- "We are experiencing a lot of student depression, low motivation, and scheduling skills." *(High School Teacher Candidate)*
- "There is a positive to being virtual. Having EL teachers not pulling groups all day is a great opportunity for EL teachers to push-in and collaborate with classroom teachers. The research tells us that pulling isolated groups is not effective for language learners, so we are trying to move toward a more inclusive model. This virtual learning is starting to move that thinking in the right direction." *(Elementary Mentor Teacher)*
- "It is a valuable experience for students to learn technology." *(Elementary Mentor Teacher)*

The fourth research question asked how mentor teachers and teacher candidates were building community online. One mentor teacher summarized it well by giving this equation for community building: "authenticity + intentionality + time." Teachers shared many excellent strategies such as implementing social emotional learning in friendship groups and morning meetings, using engaging warm-up questions to build community and trust, leading activities to get kids moving, and prioritizing projects like "Student of the Week", monthly birthday celebrations and shared read-alouds. A few quotes from teachers are below:

- "I give students a 10-minute screen break. 5 minutes is a mandatory screen break and 5 minutes can be used to chat with friends and build those connections. I also use break-out rooms often and as much as possible."

- "Small group activities, games, watching funny videos, and incorporating students' individual interests into learning materials/ topics of books read."
- "We have spent time engaging in small groups and having intentional 1 on 1 engagement with students by using multiple forms of communication to reach out—text, email, video, etc."

Discussion and Limitations

In Trust and Whalen's (2020) survey of over 300 teachers in the emergency VLE situation early on (April and May 2020), a majority (61%) cited feeling overwhelmed with all the resources. A smaller majority (52%) cited lack of knowledge about VLE strategies as another major challenge. In this current study, the researchers surveyed the participants later, in November 2020, and a different and significant concern emerged: student engagement. The data showed that educators cited student engagement as the main concern (75% of responses) versus only 18% citing teacher confidence with technology. Local educational agencies and teachers themselves ostensibly met many of the technology and training challenges over the summer and early fall. They felt much more equipped to handle the VLE technology in the fall than the abrupt pivot in the spring. One may infer that schools spent the summer months choosing tools, buying necessary software and hardware, and training teachers on the chosen systems, but not necessarily prioritizing student engagement strategies.

The researchers found noticeable differences in the training provided by local educational agencies and that of the teacher education program. Tables 2 & 3 show this difference; for example, the participants reported that the local education agencies focused on tool-centric strategies (32%) more than the teacher education program (5%). Furthermore, the participants described that the teacher education program focused their training on creativity and technology mindset; whereas, the local educational agencies focused on technology tools. The participants requested over 21 different technology tools for support. As a teacher education program, offering to support the teacher candidates and mentors for all these various tools was impractical. Instead, it was prudent to

foster a CFTF (creatively focused technology fluent) mindset and prepare candidates and mentors for proficiency in the most commonly used tools such as Zoom, Microsoft Teams, and Canvas.

The data in this VLE survey suggested that the main concern for educators in November 2020 was student engagement. The state where this survey was conducted had a high level of restrictions. Most schools were closed to in-person learning; sports and extracurricular events were restricted in fall and winter seasons; and masks were required. Families and educators were given little to no opportunities for in-person social interactions. Despite the training and technology preparation the teachers received in the summer, with such isolating measures in place along with heightened mental health concerns, the 2020-2021 school year would constitute an "emergency" VLE. The open-ended comments from the survey validates this notion. Teachers reported that parents were unable to consistently monitor their children, and many teachers themselves were responsible for their own childcare while they taught online.

In looking at our study, there were certainly some limitations around our data collection and research. First of all, this was primarily a needs assessment for a particular program. Our ultimate goal was to see how our specific interns and mentors were faring so that we could adjust programming if need be. The main intent was not one of generalizability to all American teachers. Secondly, the qualitative data was coded for common themes by one coder; therefore, no interrater agreement was established. The researchers on this team also served as the instructors of these teacher candidates, and this crossover of roles certainly could have given us a different perspective about the data. Furthermore, the survey was administered in the fall, which was a very stressful and busy time for the teacher candidates given the nature of the pandemic and the stresses of their teacher preparation program.

Conclusion

In conclusion, preparation programs should focus on training candidates for technology fluency and encourage a mindset of creativity and flexibility rather than prioritizing certain tools. Since school systems have their own adopted tools, universities

can encourage attendance at district trainings on their specific tools and integrate these trainings into program requirements. Lack of technology competence can hinder the satisfaction of student and teacher experience (Dorner & Kumar, 2017). For instance, preparation programs can integrate practical applications of tools into program assignments, such as solving problems of practice within their learning communities. In order to promote student engagement, a topic of discussion could be strategies for increasing student camera usage during synchronous classes.

As preparation programs continue to grow their capacity in training future educators for hybrid or online teaching, they must prioritize strategies to encourage student engagement. As schools transition back to in-person learning, teachers can take lessons learned from this emergency virtual learning experience and focus on best practices to re-engage students in culturally sustaining ways.

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Appendix
Virtual Learning Environment (VLE) and Needs Assessment for K-12 Teaching

1. You are completing this form as a
   - Mentor teacher
   - Student teacher intern
2. Please choose the type of school you are currently interning/ teaching at
   - Elementary
   - Middle
   - High
3. Please select the size of your school district or school system (if private school).
   - Private school system with 1,000 or more students
   - Private school system with <1,000 students
   - Small public school district (<2,500 students)
   - Medium public school district (Between 2,501-10,000 students)
   - Large public school district (>10,001 students)
4. What discipline(s) are you teaching?
5. What is the learning management system your school/district is currently using (e.g. Canvas, Blackboard, Google Classroom)?
6. Please choose the format you are using for teaching the content
   - Synchronous
   - Asynchronous
   - Both synchronous & asynchronous
7. Is your district allowing breakout rooms in synchronous classes (e.g. Zoom, Google Meet, Microsoft Teams)?
   - Yes
   - No
   - Not applicable
8. If you are teaching online, which best describes your district policy on students turning on their video cameras in synchronous sessions:
   - Encouraged, but not required

- Student preference
- Video camera is required
- Video camera is not allowed
- Not applicable

9. If you are teaching online, which best describes your district policy on teacher location during work hours?
    - Teachers are required to teach from their classroom/school unless given district/admin permission the whole week.
    - Teachers are required to teach from their classroom/school unless given district/admin permission for part of the week.
    - Teachers are able to teach from their classroom or remotely. They can choose.
    - Teachers are teaching from remote locations (e.g. home).
    - Not applicable

10. If you are teaching online, which best describes your district policy on recording synchronous lessons with students (e.g. Zoom)?
    - Recordings are mandatory
    - Recordings are not allowed
    - Recordings are dependent upon situation/context
    - Not applicable

11. If you are teaching online, how would you rate your training and support to start the year online from your administration (district or building)?
    - Wonderful support. I feel ready to go with ongoing support.
    - I had some support to get started.
    - Not sure
    - Unsatisfactory support. I did not feel ready at all.
    - Not applicable

12. If you are teaching online, how would you rate your training and support with your own grade level teams (e.g. 3rd grade), department (e.g. math department) or professional learning community?
    - Wonderful support. I feel ready to go with ongoing support.
    - I had some support to get started.
    - Not sure
    - Unsatisfactory support. I did not feel ready at all.

13. Of the online training and support that you received from SPU, which best describes the focus of the trainings?
    - Tool-centric – This is how you can use certain tools, such as Zoom or Canvas.
    - Creativity and technology based – General mindsets and principles for using technology, but not focusing on specific tool training.
    - A blend of both tool-centric and creativity/technology based
    - Not applicable

14. Of the online training and support that you received from your school system (e.g. school or district), which best describes the focus of the trainings?
    - Tool-centric – This is how you can use certain tools, such as Zoom or Canvas.
    - Creativity and technology based – General mindsets and principles for using technology, but not focusing on specific tool training.
    - A blend of both tool-centric and creativity/technology based
    - Not applicable

15. Teachers of record: If you are teaching in a new format this year (e.g. online or hybrid), how would you describe your work hours compared to previous years (not including COVID spring 2020)?
    - Working about as much as usual
    - Working 1-5 more hours a week more than usual
    - Working 6-10 more hours a week more than usual
    - Working 11-15 hours a week more than usual
    - Working >15 hours a week more than usual
    - Not applicable

16. How confident were you with technology for teaching pur-poses prior to COVID 19 closures (February 2020 and earlier)?
    - Extremely confident
    - Somewhat confident
    - Neutral
    - Somewhat not confident
    - Extremely not confident

17. How confident are you with technology for teaching purposes right now – October/November 2020?
    - Extremely confident
    - Somewhat confident
    - Neutral
    - Somewhat not confident
    - Extremely not confident
18. How often does your remote education class integrate arts, culture, and/or creativity into students' lessons?
    - Very often (multiple times a week)
    - Often (every week or two)
    - Sometimes (Once or twice a month)
    - Rarely (Once or twice a term)
    - Never
    - Not applicable (not teaching online)
19. For online school days (if you are in a hybrid scenario), how often do students get built in breaks?
    - At least every 30-45 minutes
    - At least every hour
    - Every couple of hours
    - Once or twice a day
    - Lunch only
    - Not applicable
20. Does your school incorporate digital mindfulness or meditation activities as part of the curriculum? (Check as many as apply.)
    - Yes, I incorporate digital mindfulness or meditation activities in my own content class (e.g. teaching math, English, social studies).
    - Yes, other teachers incorporate digital mindfulness or meditation activities in their content class (e.g. Math, English, social studies).
    - Yes, the schools incorporate digital mindfulness or meditation activities (such as advisory).
    - Digital mindfulness or meditation activities are provided as an optional activity, such as an online club or counselor small group offering.

- No, there are not any digital mindfulness or meditation activities that I know about.

21. What do you see as the main obstacle(s) to providing quality VLE instruction? (Check the ones you believe are the biggest obstacles.)
    - Teacher hardware and/or software
    - Teacher connectivity (Internet access)
    - Students' hardware and/or software
    - Students' connectivity (Internet access)
    - Curriculum suited to online format
    - Student engagement
    - Teacher confidence in technology
    - Student confidence in technology
    - Other

22. Provide some examples of teaching tools you are using for instruction (e.g., Kahoot, PhET, Khan Academy, Pear Deck).

23. What online teaching strategy/tool are you struggling with and need more support on?

24. What other areas of online teaching would you like more support on?

25. Is there anything else you would like to share in regards to pivoting to online learning and teaching?

26. How have you built remote learning communities and fostered belonging and connectedness in a VLE?

Student Teaching During the COVID-19 Pandemic: Navigating Being Both Student and Teacher

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Abstract

The COVID-19 pandemic flipped the education world on its head, affecting teachers learning how to teach online, as well as students trying to learn in a virtual world. But there is a small group of candidates in higher education who had to balance both worlds: student teachers. This qualitative case study recounts the experiences of seven undergraduate and graduate students in the final year of their teaching preparation program during the COVID-19 Pandemic. Through these accounts, this study further analyzed and compared how switching to distance learning affected participants both as university students, as well as future teachers. These student teachers described the incredible challenges they encountered during this unique year, the worries they held for their PK–12 students, and the unique experiences and skills student teaching during a pandemic offered them. These student teachers' experiences were also analyzed using Self-Determination Theory's components of relatedness, competence, and autonomy. Findings indicate that students, for the most part, felt related and autonomous but struggled more with feelings of mastery.

Keywords: teacher preparation programs, self-determination theory, COVID-19 Pandemic, clinical experience, student teaching, autonomy

Student Teaching During the COVID-19 Pandemic: Navigating Being Both Student and Teacher

The COVID-19 pandemic of 2020 and 2021 has been perhaps the largest disruption to educational systems internationally in history. At its peak in Spring, 2020, 99% of students in the world had been affected (Pokhrel & Chhetri, 2021). In addition, because PK-12 schools were required to shift suddenly to online, remote teaching, teachers bore a disproportionate brunt of this pandemic; suffering higher levels of stress, working additional hours, learning new distance learning platforms, and experiencing additional constraints on their time (Aperribai et al., 2020). One survey of more than 3,000 National Board certified teachers found that 75% of these teachers were working more hours, 80% found moving to online instruction to be a *somewhat serious* or *very serious* obstacle, and 50% reported feeling unprepared and in need of support (National Board for Professional Teaching Standards, 2020). These issues appeared to be exhibited across the PK-12 spectrum.

Furthermore, the impact on teachers' mental health was also found in numerous studies. In one study of early childhood teachers, 38% described clinical levels of depression symptoms (Markowitz et al., 2020). Additionally, another study of secondary teachers found that 34% reported feeling anxious or very anxious during the pandemic; these experiences were worse for female teachers than for male teachers (Stachteas & Stachteas, 2020). Many teachers also reported stress and anxiety related to reduced incomes in their households, with one study finding 73% reported that it was at least *somewhat difficult* or more to now make ends meet in their household (Markowitz et al., 2020). Perhaps most disturbing, a year after the pandemic began, in April, 2021, 92% of teachers still reported that teaching was more stressful than prior to the pandemic, with 78% saying it was a lot or somewhat more stressful today than even one year ago, at the beginning of the pandemic (Kurtz, 2021).

Literature Review: The Impacts of COVID-19 on Student Teachers

The COVID-19 pandemic truly flipped the education world on its head, negatively affecting both teachers learning how to teach

online as well as students in trying to learn in a virtual world. But there was a small group of candidates in higher education that had to balance between both worlds: student teachers. Student teachers, often also called pre-service teachers, are those in the final months of their teacher preparation program, in which they teach in a classroom under the supervision of a certified teacher, typically called a cooperating teacher, or CT. Student teaching is a challenging endeavor and a full-time commitment, even during a typical year. Not only do these pre-service teachers have to commit to teaching, but they must also balance these responsibilities with their university courses, extracurriculars, part-time work, family obligations, and more. In one study conducted pre-COVID, one in four first-year teachers reported being unable to focus in their field experiences without being distracted by other program commitments or expectations (Meyer et al., 2016).

Not only are the overall expectations of these teacher preparation programs sometimes overwhelming for student teachers, but also the expectations within their placements can be challenging. During their clinical year, student teachers are limited in their knowledge and skills due to a lack of experience in the classroom, but they are still expected to fulfill the same roles and responsibilities as veteran teachers (Noel & Shoffner, 2019). Furthermore, the experience they do gain within their student teaching year does not always have a positive impact, as practica consisting of continuous negative, discouraging, or restrictive experiences reduce the likelihood of continued practice (Almazroa, 2020). For novice teachers who do enter the profession on their own, they may become overwhelmed by the daily stressors and unexpected hurdles teachers face every day if they have not been given proper preparation. These factors and their effects on beginner teachers are reflected in the teacher turnover rate, which has shown to be highest amongst beginning teachers (Noel & Shoffner, 2019).

Purpose of this Study

With most schools transitioning into distance learning online or engaging in some hybrid form of both in person and online instruction, the COVID-19 pandemic has forced educators to engage in teaching like never before. While teachers and

administrators have often had years of experience both in the classroom and through their own education, prospective teachers in teacher preparation programs not only had to adjust to an online environment as students, but also had to learn how to be a teacher in this new environment as well. While a plethora of research emerged in the past year regarding the negative impacts related to teaching during the COVID-19 pandemic for teachers (e.g., Aperribai et al., 2020; Markowitz et al., 2020; Stachteas & Stachteas, 2020), no studies could be found describing how these pre-service teachers experienced the pandemic or the extent of the impact of the pandemic on student teachers specifically. This research study pursued these uncharted waters by asking this simple question: What was it like to be a student teacher during the COVID-19 pandemic? Through this overarching question, we sought to investigate the many challenges, as well as to explore any unexpected but valuable experiences in which student teachers engaged. To investigate this question, this study recounts the experiences of both undergraduate and graduate students in their final year of their teaching preparation program during the COVID-19 pandemic. Through analysis of these accounts this study further compares how switching to distance learning affected participants both as university students as well as future teachers, with a focus on improvement of teacher preparation programs in times of crisis.

Theoretical Framework

The theoretical lens for this study was Self-Determination Theory (Ryan & Deci, 2000), as this theory helps us understand the extent to which these student teachers felt able to manage their own life and choices amidst this global pandemic. This theory purports that continuing to grow, learn and stay present in the process of becoming a teacher (i.e., their intrinsic motivation in their teacher preparation program) is directly related to three innate needs: the need for competence (i.e., gaining mastery), the need for relatedness (i.e., experiencing a sense of belonging), and the need for autonomy (i.e., feeling in control) (Ryan & Deci, 2000). These components are crucial and have been shown to enhance PK-12 student achievement (Marshik et al., 2016). With

this theory in mind, this study sought to understand the extent to which these student teachers felt autonomous to participate in their clinical year to the best of their abilities, supported and well prepared (i.e., mastery) to teach beyond their clinical year, and a sense of belonging in their placements and program.

Methods

These research questions were explored and investigated through a qualitative design, specifically a multiple case study design (Yin, 2009), bounded by both individuals and by one particular school of education in one small, private liberal arts college in the Pacific Northwest. Qualitative case studies are best for in-depth exploration of an issue (Creswell, 2013), as was desired to understand the experiences of student teachers during this COVID-19 pandemic.

Participants

This case study utilized two mechanisms of purposive sampling (Creswell, 2013) to ensure a wide variety of experiences were included. First, criteria sampling was utilized to create four lists of students of the nearly 70 possible student teachers at this university: (a) undergraduate elementary student teachers, (b) undergraduate secondary student teachers, (c) Master's in Teaching (MAT) elementary student teachers, and (d) MAT secondary student teachers. Next, random sampling techniques were utilized to select two participants from each of the four lists using a random number generator (see random.org) to ensure objectivity in participant selection. Random sampling was desired as we wanted to ensure we captured a typical student teaching experience. If students did not consent to participate, a new name was drawn from the list using the random number generator until all eight spots were full. One elementary MAT participant ended up withdrawing their participation in the study due to feeling overburdened, leaving a resulting sample of seven participants. All participants provided informed consent to participate and this research was approved by the Institutional Review Board (IRB). Pseudonyms were used to represent individuals to protect participant confidentiality, and in many cases the data was aggregated to

further protect confidentiality due to low program numbers.

Table 1 describes these seven participants, which represented a wide variety of grade levels, subjects taught, and COVID-related teaching contexts (i.e., hybrid, synchronous online, asynchronous, in person) across the two time points. For the most part, students were teaching fully online for most of the year, as their student teaching placements were ending just as the state required transitioning to hybrid instruction. Four of the students were undergraduates in their fourth and final year of the program while three of the students were MATs in a 10-month post-bachelors master's degree program. These students were diverse, with about half identifying as people of color. Six of the student teachers identified as female while one identified as male; this proportionality well represented the program as a whole. As students at the university, all had experienced fully online courses across the entire year. These remote classes were typically mostly synchronous in nature, utilizing Zoom or Microsoft Teams, although some courses utilized some asynchronous mechanisms. While the university did offer some in-person courses in the spring, because these were targeted towards first-years and sophomores, none of the participants in this study took an in-person course.

Data Collection

To investigate the research question, two researchers completed two interviews with each of the seven student teacher participants for a total of fourteen interviews. To best understand how the experiences of these student teachers evolved or changed across the pandemic and across their experiences while student teaching, these interviews took place at two different points over the school year: once during the fall semester and once during the spring semester. These semi-structured interviews were conducted one-on-one via Zoom and were recorded and then later transcribed. Each interview lasted approximately 30 minutes.

Each interview started with rapport building and the question, *"Tell me about what it's been like for you as a student teacher during the COVID-19 pandemic."* Follow-up interview probes to this main question during the first interview included: (a) What has been challenging about student teaching during a

Table 1

Participants' Student Teaching Grade Levels, Subjects, and Teaching Situations

Grade	Subject	Fall	Spring
K	All	Full distance learning: mixed synchronous & asynchronous	Shifted to hybrid (i.e. some of the time in person, some of the time distance learning)
K	All	Full distance learning until October; then hybrid small groups	Continued hybrid; shifted to larger groups
Grade 5	All	Full distance learning; mixed synchronous & asynchronous	Full distance learning with a new classroom of online only students when school transitioned to hybrid
Middle School	Spanish	Full distance learning; fully asynchronous	Did not change
High School	PE	Full distance learning; mixed synchronous & asynchronous	Did not change; was shifted to hybrid the last week of student teaching
High School	Math	Full distance learning; mixed synchronous & asynchronous	Did not change; was shifted to hybrid after the last week of student teaching
High School	Social Studies	Full distance learning; mixed synchronous & asynchronous	Did not change; was shifted to hybrid the last week of student teaching

pandemic? (b) What has been rewarding about student teaching during a pandemic? (c) What supports have been particularly helpful? Follow-up interview probes to this main question during the second interview included: (a) To what extent have you felt successful in this situation? (b) What do you consider your major strengths as a teacher? Do you feel any of these strengths are attributable to the pandemic? (c) What tips or advice would you have for other student teachers teaching under such circumstances?

Data Analysis

To analyze the data, researchers utilized three rounds of coding techniques. The first round of coding involved open coding, in which we identified emergent themes without a coding scheme (Miles & Huberman, 1994). In particular, this round focused on looking at the changes in the transcripts from the first interview

in the fall (i.e., near the middle of the student teaching experience) to the second interview in the spring (i.e., near the end of the student teaching experience). The second round of coding involved utilizing in vivo coding techniques (Saldaña, 2015), in which we utilized the participants' own words and phrases to assign themes to the data. This practice of honoring the actual voices and words of student teachers was inherent to this study. In the third and final round of coding, we utilized deductive coding to examine the transcripts for specific examples of Self-Determination Theory (Ryan & Deci, 2000), including coding for examples of relatedness, competence, and autonomy.

Trustworthiness

The two researchers involved in this study were a teacher educator and a student teacher, both working within this particular teacher education program. It was therefore imperative that issues of potential bias be mitigated whenever possible to ensure trustworthiness (Lincoln & Guba, 1985). First, purposive sampling techniques, including random sampling and the use of random number generators, were used to ensure the data collected were representative of the wider student population and reduce researcher bias. Second, because of prior relationships from teaching courses for the teacher educator and taking courses for the student teacher, the interviews were conducted in such a way that no interviewer had a prior relationship or a relationship of authority with any interviewee (i.e., the teacher educator only interviewed students they had not had in class before, and the student teacher only interviewed students they also did not know personally). Third, this study utilized prolonged engagement techniques by conducting two interviews with each participant with months of time in between. Data were then analyzed in terms of consistency in responses over time. Fourth, the two researchers double-coded all data during both rounds of data analysis to increase dependability of the results.

Results

After compiling the first two rounds of open coding of the responses of participants from both sets of interviews, four

common themes emerged: the difficulty student teachers experienced both teaching and being a student during a pandemic, the negative effect they saw on their students, how they had been supported throughout this experience, and the positives that had emerged from these experiences. The themes displayed use the participants' own voices. After these three themes are unpacked, the results of the third round of deductive coding, which sought to understand the extent to which these students experienced relatedness, competence, and autonomy, will be described.

"We are Drowning"

It is no surprise given the difficulty student teachers face in normal years that the key take-away of this study was that student teaching primarily in an online setting during the COVID-19 pandemic proved to be even more of a challenge. On an emotional level, the participants emphasized how "it's just been a really draining experience" and that "the biggest thing is the socioemotional aspect of it and just really wanting to be in the classroom." Another elaborated, saying, "It was really hard to be in my bedroom where I eat, where I sleep, where I do everything, and to also try to teach." When comparing their experiences of their student teaching to their previous undergraduate years, one candidate specified, "I think that I have been stressed the past three years, but not to the extent or way I have been this year." In some cases, the effect of not being in-person or of primarily teaching asynchronously (not teaching or interacting with kids live) made candidates say, "It kind of doesn't even feel like I'm teaching at this point."

In addition, participants reported feeling like they were "drowning" with their excessive work-load, describing trying to fully commit to their responsibilities as a student, a teacher, and a person in an "endless cycle" of "ever present" to do lists. The long days involving teaching online as early as 8am and then completing evening university classes that were also online until 7 p.m., was described to be a "pretty miserable experience," and the concept of "Zoom fatigue" came up again and again. In terms of the workload itself, several participants discussed how "it just feels like *a lot*" or "it feels like a full-time job, like around the clock." The impact of these long days and overwhelming workloads

within their teaching were in turn felt within their performance as a student. In one case, a participant had been approached by their professor after noticing they were "always really tired" due to the participant only "getting maybe 3 hours of sleep a day and then catching up on the weekend." Several participants also compared what they were seeing with their students in their classes as teachers to that of their own behavior as a student in their university courses, noting "the stuff you complain about as a teacher is the same things you're doing as a student." One participant described their experience as a "great, great test of resilience," seeming to encompass the common idea that their student teaching tested the limits of some of these candidates and their abilities to balance between the different roles in their lives. In some cases, however, participants were also able to find comfort in knowing they were not alone in facing these challenges, stating how it was "very helpful just to know that everyone else is going through the same struggles that I am in terms of balancing school work and student teaching."

Finally, this experience also tested student teachers on a personal level. One of the students described repeated problems financially due to being laid off from their part-time job repeatedly as restaurants closed, then opened, then closed again. A second student described losing their on-campus job at the same time their parents also were laid off and had wages cut, causing a severe financial strain on their family. This student was forced to work an additional full-time 50 hours-per-week job on top of student teaching and classes to keep their family afloat. A third student was a single mother with three young children who were also at home full-time learning online themselves; she described really struggling with how "the separation between work and home is nothing." Another summed up how, "during the pandemic everything seems more stressful, I probably would not be as stressed as I am if there wasn't a pandemic going on." In sum, these students described "a pretty miserable experience" with a "very harsh toll on my mental health."

"But We are Failing our [PK-12] Students"

The second theme found among the participants was the

concern for students and how these circumstances were negatively affecting their learning. This was not a specific interview question, but this theme arose again and again regarding the challenges these student teachers experienced. This was especially the case for younger students, as this was brought up by both kindergarten teachers, particularly in relation to students with special needs. For instance, one participant expressed how "I feel like it's failing a lot of the students who need help the most," primarily thinking about students that have been difficult to support in the online world.

Several participants discussed the difficulty in ensuring student engagement. One participant expressed this concern, saying "the thing that weighs on me most is student engagement and making sure we're able to reach all students." The students went on to describe navigating students who were "signed in" to their online environment but were not participating during the lessons. These issues were especially prevalent for the high school teachers, who repeatedly described issues with cameras being off: "they aren't really there…all their cameras are off and no one is talking to each other…so there's no way to force that interaction, and I think the biggest challenge is trying to facilitate that." Another high school teacher elaborated, saying, "I think it's pretty clear that there's maybe 5 students who are there and actively participating out of 30 and then there's just 25 blank screens, who I've never seen their faces, never heard their voices." Another participant described how they "just want kids to learn" but that they did not feel like students were; the participant attributed part of this problem to how the lessons they were teaching were "so repetitive because we don't have many different ways to do things [online]." Overall, these student teachers seemed to hold a deep empathy for their students' experiences in navigating online learning and tried to find the best way to support them through it.

"We're Here to Help!"

Among the questions asked in both their initial and their follow-up interviews, each participant was given the opportunity to share what supports had been helpful to them throughout their experience. In response, many of the student teachers discussed

the supports that helped them both in their teaching and in their university courses; these supports acted as life rafts. Several participants mentioned how their professors were "super flexible" and "really available" to them outside of class. Many of them noted their appreciation for having professors that "acknowledge the struggle" and how they encouraged a "safe and positive environment" for them in their virtual meetings. In addition to having faculty supports, several participants also mentioned the value of having their university cohort as a support system, noting how "they're the only other people that really know what you're going through right now."

In addition to having strong supports at their university, participants often cited their cooperating teachers as valuable supports in their student-teaching placements. As many of the teachers participants worked with were also new to the world of online learning, several participants noted how these unique circumstances allowed them to feel like they were "working with [them]" and were given the opportunity to "constantly try to come up with things together" rather than a strictly mentor-mentee relationship. In other cases, some participants were able to integrate their own ideas early on in their placement, in which their CTs allowed them to "try things and fail," while still having their support if things did not go as planned. Other participants mentioned their appreciation for their CT's "patience and kindness" throughout the year as they were able to take on more responsibility while still having someone they could go to for questions and additional guidance when necessary.

While participants were able to list many of the supports they had during their placements, several expressed concerns about supports—or lack thereof—that will be in place following their student teaching. Participants noted they would be needing "a lot of support and guidance from those veteran teachers" when in their first teaching job. Many also expressed how their student teaching felt limited due to the online environment and that what they have learned in their university courses feels "still theoretical." In turn, the ability to "have the support next year could be really beneficial" to guide them in the areas of their practice they feel less confident.

"It Wasn't as Bad as I Expected"

Despite the many challenges the candidates faced over the course of their student teaching, there were still many positive and rewarding experiences. Given that the CTs the candidates were working with were learning how to teach online alongside them, one said this experience "has given me the opportunity to feel like I can suggest different things…so I feel very involved in the process." Another participant discussed how, despite difficulties in trying to increase student engagement, "it's been positive" and a good learning experience that has "gone as good as it could have considering the circumstances."

Many of the candidates highlighted the positive impact this particular way of student teaching had on requiring they get to know their students in different ways and be able to support them online in different ways. When asked what has been rewarding about their experience so far, one participant said, "getting students down on the routine and creating an environment online where they feel safe and comfortable." Another participant discussed how "I think we're getting a much sharper picture of what their home lives are like" due to students logging into class from their homes, which provided further insight into factors outside of the classroom that may be affecting their performance in school. Some of the student teachers also noted "small wins," in that "there's always those little moments that are fun, like I went to a breakout group and everyone was talking to each other and that's the best."

In addition to learning more about supporting the socio-emotional needs of students, several candidates discussed how the unique circumstances provided more ways to support the learning and engagement of students. When one of the participants transitioned into a hybrid model at their school which included in-person teaching, they discussed how "no way unless we were in the middle of a pandemic would we just have small groups of only four to five kids." By "getting to know these kids at such an intimate level," this participant felt they had "so much time to support each of them individually." Another candidate considered how having the students online has made them "more talkative, more willing to connect, because…this is a lot of times their only social interaction for the day…I think that's made them a lot more

willing to build a relationship with me." While the online environment provided several roadblocks for students and teachers, these student teachers also demonstrated that there are still many things that would be beneficial for future teaching practices.

These student teachers also described a plethora of learning in the area of technology that they might not have otherwise gained. One student described how they've "learned a lot more about digital resources than I think I ever would have in any other year," while another agreed, saying how this situation "forced me to use more technology than I ever have in a job, and it will look good on a resume and also it's just nice to be more comfortable with it." These students reported using a plethora of new technologies to better instruct and engage students, including using interactive Google slides presentations; differentiating and creating choose-your-own-adventure type-assignments with EdPuzzle, Nearpod, and Google Forms; having students collaborate with each other on Jamboard and Padlet; assessing students in new video-based ways with Flipgrid; and engaging students with Kahoot and other polling software. It was clear these students should be proud of themselves, and they "gained a lot of skills as a teacher."

Perceived Relatedness, Competence, and Autonomy of these Student Teachers

The third qualitative coding mechanism utilized deductive coding to understand these student teachers better in terms of their perceived levels of relatedness, their level of competence as a future in-service teacher, and the extent to which they felt autonomous, or in control, of their situation. In this analysis, the researchers used deductive coding to identify elements of text as descriptions of the three components of Self-Determination Theory (Ryan & Deci, 2000): relatedness, competence, and autonomy. Next, researchers coded these pieces of evidence as low (i.e., not feeling related, competent, or autonomous), medium (i.e., feeling somewhat related, competent, or autonomous), or high (i.e., feeling related, competent, or autonomous). The overall perceived levels for each of the seven participants ranged from low to high for each, as shown in Table 2.

Table 2

Perceived Levels of Relatedness, Competence, and Autonomy,
Categorized in Levels through Qualitative Coding

Level	Relatedness	Competence	Autonomy
Elementary	Medium: Experienced a somewhat strained relationship with CT	Medium: Strengths in patience and kindness; struggles with lesson planning, feedback, creativity	Medium: CT assumed a less directorial role in the Spring which increased autonomy from Fall to Spring
	High: Described their biggest support was their CT	Medium: Strengths in reflective practice, reports that "next year, we're going to need a lot of support"	Low: "[My CT] likes to micromanage"(Fall); to Medium: "I [do] have some autonomy" (Spring)
	High: Described they "would not have gotten through this year without her [their CT}"	Medium: Strengths in SEL, technology, and flexibility; described needing supports in assessment	High: "I've felt super autonomous (Fall); and "My CT's just like 'alright go for it! Let's just try it!'" (Spring)
Secondary	High: Described how this situation facilitated an even more balanced relationship with their CT	Low: "I don't have any classroom management experience=I don't feel prepared to teach at all"	High: "I've felt pretty autonomous throughout the whole process" (Fall); and, "My CT really let me take things whichever direction I wanted to" (Spring)
	Medium: Described over time "their CT backed off a little bit" from their experience in the Fall, and in the Spring were "very helpful"	High: "As far as lesson planning and implementing content in creative fun ways, I felt very successful"	Medium: "My CT kind of tends to just take the reins little bit" (Fall), which improved in the Spring to, "Once January hit it was really just all me all the time"
	Medium:They felt like their CT was also figuring out what to do, which reduced collaboration, but they also felt supported	Low: "Everything is a little theoretical. I feel like I haven't gotten any real experience. It feels like classroom management is a big issue"	Low: "I just sit in on exercise videos" (Fall); improved to High in the Spring; "I had complete free range to do what I wanted"
	Medium: Felt empowered to work side-by-side with CT and other math teachers. although there was some frustration	Medium: Strengths in discovery-based learning, creative lesson planning, and relationships; described needing support to serve struggling learners	High: "I felt super autonomous, especially once I took over my own classroom, I was making all the materials and lessons and was a big player in our community"

Relatedness

There were varied levels of relatedness felt by the participants in this study; however, all seven student teachers felt some sort of relatedness, classified through our qualitative coding mechanisms as either Medium or High, to their CT, their school and classroom, and their program. Most importantly in this finding was perhaps how the situation presented through the pandemic actually provided an opportunity of sorts for the student teacher to be on a level playing field with their CT, to be seen as a peer and colleague rather than a student and mentee. For example, one student described this scenario:

> I think being in this environment has really given me the opportunity to feel like I'm working *with* her [the CT] because we're constantly trying to come up with things *together* because she's never done it either so I feel very involved in the process, which has felt rewarding. It sounds bad but the fact that no one really knows what they're doing has given me the opportunity to feel like I can suggest different things, and try and come up with different methods and things like that, so I feel very involved in the process which has been rewarding.

Competence

Students' perceptions of their own competence were the lowest rated component of Self-Determination Theory, with all but one student rating themselves either Low or Medium. Some students were worried about how their lack of in-person experience would translate on the job market: "To try to get a job and try to explain, like, 'yeah no I never have actually had to step foot in a classroom except to pack bags for kids that aren't there…'" Another agreed, saying, while they did "have some classroom experience because of my previous job it's still going to be a hard sell, I feel like." Others were not as worried, stating that they, "feel like my skillset will translate to in person," while another celebrated this new skillset, saying:

> I think we're going to come out with some really unique skills and overall, it's going to make us better teachers, even though it wasn't a fun time. You can whine about it

the whole time, but you can still learn something from it.

Lastly, one student who had previously questioned her own competence had actually just transitioned to a new, full-time job through the end of the year and noted that, "It took me until this week to realize, I know how to write a lesson plan, I know how to start with the outcomes and work backwards, and now I'm feeling a bit more confident about lesson planning." She still was questioning herself a bit though: "But in terms of classroom management I didn't really get to practice building in person relationships, so the community building and the classroom management has been a little bit rough to start."

Autonomy

The data revealed how the candidates managed to find their place as teachers and obtain autonomy while working with their CTs. In some cases, the student teachers were able to fully embrace their role as the lead teacher and experienced high autonomy. Some actually attributed the extent of this autonomy to student teaching during the pandemic: "I don't know if I would've actually had as much autonomy in person, but since everything is like fly by the seat of your pants, I get a lot of autonomy." Another student elaborated on this shift in power and autonomy:

> The power dynamics in the classroom is very different between a student teacher and a CT than a typical classroom, just because typically the main teacher has been teaching for 10, 15 years, and they really know what's going on, and you're the student teacher. Maybe you haven't been in a classroom before so you're there to learn and then in the online setting it's a little different because both of you are new to what's going on, so I found right off the bat I was not pushed, but allowed to enter into a more regular teacher role than more of a student teacher role, like leading lessons a lot sooner. Having a greater awareness of technology and how to use it was a big asset for me [in shifting] the power dynamics.

In other cases, it was more difficult for the candidates to retain autonomy throughout their experience. One participant discussed how their CT "kind of tends to just take the reins a little bit…

he's always there, so I do feel like my lessons are a little derailed sometimes and I'm not always the one in charge." However, despite certain CTs trying to maintain some control of their classroom, all of the student teachers felt they were able to be fully autonomous when teaching lessons that they laid out and planned themselves. Further, all of the student teachers who described low autonomy in the fall experienced increased perceptions of their own autonomy during the spring, full-time placement.

Some students felt both autonomous in terms of the day-to-day aspects of teaching, but not in terms of others. Some, for example, felt a lack of autonomy in terms of supporting students. One elementary student teacher described how, "I think the most stressful thing is I feel like I can't help the students who need it the most." They described how because so much of the work was asynchronous, it was very difficult to "make sure all the students get the help they need and the support they need." These student teachers felt helpless in this way. Others felt a lack of autonomy in terms of district mandates and policies, like the grading and assessment processes and the constantly changing landscape in terms of COVID protocols and shifts to hybrid learning and back again. However, most chalked these issues up to problems that were out of their locus of control. Finally, students also reported feeling "really out of control" about edTPA, the required licensing test in this particular state, which was especially the case for those doing only asynchronous teaching: "That is something that I did not feel I had control over, and it didn't feel very fair." Feelings of autonomy ranged widely.

Discussion

It is clear that this situation was an incredible challenge for these student teachers. They described feeling that they were "drowning," both in terms of navigating the world of virtual teaching and in surviving the balance between virtual teaching and virtual learning in their courses. At the same time, students described supports that helped them stay afloat and identified benefits to the situation as well. While we hope a challenging pandemic does not occur again, students often encounter challenges during educator preparation programs. The question to

consider now is how can we use what we learned to support our students better and in new and innovative ways, especially in terms of enhancing the relatedness, competence, and autonomy of our student teachers?

Relatedness

This study, like Ryan and Deci (2000) theorized, revealed that relatedness and relationships must be prioritized in teacher preparation programs. These teachers referred to their placements in the field as being highly impactful, either positively or negatively. Positive relationships between the student teacher and their mentor teacher have been shown to be the most influential in a successful placement, in which student teachers receive continuous feedback and support related to lesson plans and instruction (Almazroa, 2020). Contrarily, practica consisting of continuous negative, discouraging, or restrictive experiences reduce the likelihood of continued practice (Almazroa, 2020). In this study, nearly half of the seven participating student teachers did not plan on teaching the next year. While this decision was largely due to pandemic-related issues, these participants did, at times, struggle in feeling related. To increase feelings of relatedness, teacher preparation programs must ensure field experiences are high-quality, choose strong CTs and university faculty for supervision, and then provide mentoring and support on how to promote a sense of belonging with student teachers (Allen, 2003).

Competence

These student teachers, understandably given the year, struggled the most with competence and mastery. Teaching is hard, and one is certainly not a master teacher upon completion of a teacher preparation program even during normal years; however, these particular future teachers may need additional support around classroom management and actually being in a classroom in the years to come (Korkut, 2017). These student teachers expressed trepidation about both obtaining a job and succeeding in that job, especially the day-to-day operations of managing a classroom, based on their current experiences. Both teacher preparation programs and school districts might consider

implementing new or revised mentorship programs for new teachers for the coming years. Understanding classroom management more comprehensively (i.e., Kwok, 2019) and the day-to-day operations of running an in-person classroom will require mentoring next year and beyond.

These teachers also repeatedly referred to the many requirements on their time in terms of coursework and program components as being stressors, which likely impacted feelings of mastery. Research agrees, suggesting that overly high expectations for student teachers' time commitments contributes significantly to the problem of excessive workload, often identified as one of the biggest stressors within these teacher preparation programs (Almazroa, 2020). These student teachers discussed Zoom fatigue, competing priorities between the coursework and the placement work, and the state-licensure test (edTPA) as causing stress. Teacher preparation programs should consider reviewing all program requirements and possibly condensing or removing some, especially during times of crises, to only the requirements most likely to enhance competence.

Finally, while this study was about student teachers, not their PK-12 students, we would be remiss if we did not mention that these findings revealed our PK-12 students may need support for years to come as well. These student teachers encountered difficulties supporting students with diverse learning needs, working with students with inconsistent internet access, teaching younger students with limited experience with online tools, and engaging students online, including trouble with the dreaded "cameras off" phenomenon. Teacher preparation programs must consider how we can better equip our pre-service teachers to support students in the coming years and how we can directly support PK-12 students in terms of learning loss, which may be inequitably severe (Pier et al., 2021). In addition, teacher preparation programs must consider how to support our pre-service teachers to enhance students' social emotional learning and reduce impacts of trauma (Buntin & Gavulic, 2020; Dooley et al., 2020).

Autonomy

Lastly, a key finding of this study was that these student

teachers appeared to experience higher levels of autonomy during this past year than they would have otherwise experienced. The pandemic actually facilitated this autonomy by shifting many students into a *colleague*, rather than a *mentee*, role with their mentor teacher due to the steep learning curves for all. This shift was a positive one, with other research agreeing that student teachers prefer a more *participatory* role, rather than just an *observatory* role (Almazroa, 2020), and even in-service teachers reported autonomy-supportive leadership styles as reducing stress and emotional exhaustion during this stressful time (Collie, 2021). Because this situation was facilitated by virtual learning, it is important to consider how these feelings of collegiality and autonomy can be fostered during non-COVID times. Perhaps an emphasis on fostering autonomy during training and mentoring for CTs could foster these feelings. Perhaps facilitating partnerships between CTs and student teachers around topics in which both are novices could cause similar situations to those surrounding virtual learning. Perhaps there are ways for the requirements in teacher preparation programs to offer choice to enhance student autonomy in showing their own mastery of the learning. Given that we know autonomy for teachers is important in general for student achievement (Wei et al., 2019), teacher preparation programs must continue to innovate in how autonomy for their student teachers can be enhanced and even facilitated, organically or artificially.

Limitations

While the recommendations we offer in this article are supported by data, caution must be executed due to the limitations of this study. While representation was ensured by stratifying participant selection and then utilizing random sampling techniques, this study was limited in scope in that it was inclusive of only seven participants within one teacher preparation program in the Pacific Northwest. This study would have been strengthened by a larger sample both within this one institution and beyond this institution. Further, while prolonged engagement occurred by tracking student experiences over time across two separate interviews, future research should employ triangulation

techniques, such as by including observations and analyzing artifacts. In addition, future studies should follow-up with these students across an even longer period of time, as it is difficult to predict what the long-term effects of student teaching during the pandemic will be on these student teachers.

Conclusion

Student teachers are not alone in their experiences during this pandemic, but they have faced a year far-removed from typical experiences of previous student teachers. These student teachers had unique perspectives, as they could see the issues from both sides: "It's funny being a student and a student teacher at the same time, because the stuff you complain about as a teacher is the same things you're doing as a student! So who am I, I can't complain, I don't want to have my camera on either!" Despite the many difficulties these student teachers experienced, there is still value in how this past year will impact their future as fully-licensed teachers. One of the participants summed this up well, saying: "I think that there is the reality of 2020 and 2021: everybody's been altered." We have all been altered, so let's ensure teacher preparation programs leave altered for the better.

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