How COVID-19 Pandemic Experiences can Inform Teacher Education and Professional Development Practices

Susan Schultz

St. John Fisher College

Kristen Love

University of Rochester

Abstract

Participants in this research study found themselves suddenly forced into remote instruction during the COVID-19 pandemic, unfamiliar with online teaching and with little guidance from the field of education. Survey data was used to capture the voices of 18 K-12 educators to share their lessons learned, the challenges they encountered, and the strategies they developed from their experiences as they reimagined education in an online environment. Findings are reported in an effort to inform professional development and teacher preparation programs.

Keywords

Teacher Preparation, Online Education, Professional Development, Culturally Responsive Teaching

Introduction

The global K-12 educational system experienced a major stress test during the COVID-19 pandemic. More than 1.5 billion school-aged students across 188 countries experienced an immediate closure of their schools in March 2020 (OECD, 2021). With the effects of COVID-19 persisting, K-12 institutions continue to experience disruptions and challenges for student learning due to social distancing and unfinished learning that occurred the year prior (Rodriquez, 2021). Teachers remain under pressure to shift their pedagogical approaches to teaching and supporting students, with no indication that this need is unwaning (Cardullo et al., 2021). In examination of teacher practices during the COVID-19 pandemic, there are considerable differences in how teachers approached their classroom instruction (Aguilera & Nightingale-Lee, 2020). Research continues to emerge about the variability of remote teaching practices post-COVID 19 pandemic (An, 2021; Cardullo et al., 2021; OECD, 2021).

The Organisation for Economic Co-operation and Development (OECD) reported that prior to the pandemic, only 43% of teachers felt prepared to effectively utilize information and communication technology (OECD, 2021). Only 56% of teachers indicated that educational technologies were integrated into their teacher-preparation programs prior to 2020 (OECD, 2021). This concern for preparation is also evident in the United States as Voithofer and Nelson (2021) estimate that about two-thirds of teacher preparation programs incorporate TPACK (Technology, Pedagogical, Content Knowledge) practices into program instruction. This results in a lack of prior experience with technology integration for a large portion of teachers before entering classrooms. Questions remain about the necessity of remote teaching

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post-COVID, however, Cardullo et al. (2021) argues that remote teaching practices should become a permanent fixture in teacher education.

The National Center for Educational Statistics (NCES) indicates that more teachers are reporting less authority and autonomy over making instructional decisions in their classrooms, as compared to reports from 2008 (NCED, 2018). Teachers believe their ability to make classroom decisions are diminishing as a result of high-stakes testing and standardization of curriculum. In a recent op-ed for the National Education Association, Flannery (2020) clarifies that the deterioration of the profession is a result of "Top-down policies that ignore teacher expertise, misguided accountability policies that make teachers feel disrespected, and lack of attention to what teachers have to say about the policies in their schools and classrooms are critical obstacles" (p. 1). Conversely, NCES (2018) argues that teachers who report high levels of perceived autonomy also report high levels of satisfaction with their jobs (96%) as compared with those who report perceived levels of low autonomy (83%). The convergence of a potential lack of educational technology training with a perceived lack of autonomy in classrooms presents a unique opportunity to explore remote teaching practices and how those decisions inform teacher experiences.

Self-efficacy has an equally important role in determining a teacher's ability to quickly adjust to disruptions and challenges (Benson, 2000; Vangrieken et al., 2017; Warner-Griffin et al., 2018). Highly efficacious teachers are more likely to experience success with new challenges and report less stress during adverse teaching moments (Pressley, 2020; Warner-Griffin et al., 2018). This is an important point because teachers were expected to be the experts and innovators during the COVID-19 pandemic. They needed to use an array of technology that was previously unavailable or underutilized. The coined phrase Zoom fatigue became a common challenge as estimates of videoconferencing increased from 10 million in 2019 to 300 million in 2021 (cited in Driscoll, 2021). This rapid growth in videoconferencing technology was then matched by reports of headaches, fatigue, lack of focus, and exhaustion for remote students and workers, thus making Zoom fatigue another dilemma for teachers to tackle in the midst of COVID-19 (Klein, 2022; Ofgang, 2021; White, 2021). Coinciding with the potential lack of feeling ill-equipped with information and computer technologies, it is especially relevant to explore the implications of COVID-19 on instructional decision-making, classroom practices, and teacher preparation.

Incorporating digital technologies in K-12 had been steadily increasing in classroom spaces in the United States even prior to the COVID-19 pandemic (Smith & Stahl, 2016). However, there can be technological challenges and attitudinal barriers to overcome before successfully integrating technology into classrooms and these obstacles that cannot be easily and quickly remedied for educational systems (Xie et al., 2021). As new digital tools and pedagogical methods emerge, teachers need to become aware of, be trained on, and gain necessary knowledge to utilize these new digital tools (Ertmer, 1999; Ertmer, 2005). This particular need for classroom support and training in digital technologies was exacerbated during the pandemic as affirmed in the most recent OECD (2021) report post issued 18 months into the pandemic:

> The pandemic has also shown that education systems need to have a strong digital learning infrastructure. This infrastructure is best developed and implemented in collaboration with the

> teaching profession. Effective and inclusive digital platforms should offer valuable resources for in-school and out-of-school learning experiences which can, in part at least, address the inequity that blights many learners' experience of education and improve learning effectiveness for all (p. 5).

Schools across the globe responded differently to the needs of families and teachers and in consideration of the digital tools available to each school community (OECD, 2021). These variabilities to remote learning likely influenced the personal attitudes and experiences of teachers in the field, or their relationships and experiences with students and families. A study in Korea revealed there were dramatic differences in how teachers shifted to online teaching, and this resulted in teachers' increased experience of negative self-perceptions of themselves as effective teachers and more families feeling as though their teachers were incompetent to teach (Choi et al., 2021).

It was no small task to ask teachers to connect with students and families in an online space. Teachers needed to adjust their instructional delivery to offer social-emotional support while also ensuring equitable access to instruction (Aguilera & Nightingale-Lee, 2020). Woodley et al. (2017) addressed the need for responsive teaching practices with the assertion that online environments should be designed with diverse students in mind. The rapid shift to online teaching during COVID-19 also necessitated a pronounced emphasis on digitally-rich Culturally Responsive Teaching (CRT) practices. However, K-12 digital culturally-responsive practices remain an under researched field of study in education (An et al., 2021). Recommended practices such as reflection of assumptions or bias, recognition of cultural frames, and points of connections with students of diverse racial, cultural, ethnic, neurodiverse, and socioeconomic backgrounds could be readily adapted to an online environment (Hammond, 2015; Larrivee, 2010).

Building relationships is an important facet of culturally responsive pedagogy (Hammond, 2015; Mahmood, 2020). Mahmood (2020) posits it is possible to include the hallmarks of culturally responsive teaching by "creating opportunities for student-centered discourse and meeting the cognitive needs of communal learners. At the heart of culturally responsive teaching is the idea of being responsive to students' academic and social emotional needs" (para. 5). This is achieved through building trusting learning relationships, creating opportunities for student-centered discourse, and meeting the cognitive needs of learners. These tenets may look different in online learning than in face-to-face classroom settings, but these questions remain unanswered for educational institutions.

Mahmood (2020) notes online platforms allow students a window into their teacher's lives and vice versa, a concept worthy of consideration during COVID-19 pandemic teaching. This reciprocity shows students that their teacher is willing to share and trust them too. Allowing students to engage by using emojis, raised hand symbols, polling features, and chat functions appeals to students emotionally while engaging them academically. Subsequently, the researchers wondered what practices were occurring during the pandemic, and how this will impact future practice.

This study focused on K-12 remote teaching practices that supported students in both asynchronous and synonymous settings. Remote learning compounds the needs of students with special needs who by nature of their disability, need additional support. We

explore which instructional strategies were most effective during the COVID-19 pandemic for remote teachers and the level of autonomy teachers perceived they had to make those instructional decisions. We surveyed 18 teachers asking them to describe their remote synchronous and asynchronous teaching practices in the 2020-2021 school year. We were specifically interested in teaching practices that were culturally reflective and responsive to students to inform how teacher education preparation programs can better prepare and inform future teachers. This study was grounded with the following questions:

1. What effective practices and instructional strategies were used by remote teachers to address academics, social emotional development to support students?

2. What can teacher education glean from the initial experiences of remote teachers during the COVID-19 pandemic?

Central to this study are the concepts and ideological tones of Kolb's experiential learning theory (Kolb, 2015; Kolb & Kolb, 2018) that encourage teachers to consider the unique ways that learners access information in ways that maximize their experiences with learning. This theoretical model also considers the interaction between the learner and the environment (i.e., remote instruction) to explain the different ways that development and learning takes place. The researchers surmise that learning remotely is a fundamentally distinctive learning space that requires teachers to reconsider traditional teaching practices, subsequently requiring teacher education programs to rethink how they are preparing preservice teachers. A remote teaching environment involves a complex layer of important instructional decisions, and each of those decisions needs to also weigh the dynamic experience of what it means for each student to learn from their remote space. Teacher education programs need to include preparation for remote learning, as well as the subsequent technology practices resulting from what the field of education has learned during the pandemic.

Method

The sole method of the study was the distribution of a web-based online survey that participants received either through national list serves or direct recruitment from the researchers. The online survey was developed using the Janus-faced approach of survey design which is an approach that necessitates researchers examining how the participants experience the survey and the usefulness of the survey results (McLeod & Blythe, 2013). Consideration was given to the questions as they are connected to the research questions and to the interest of teachers to share qualitative perspectives to the topics. Therefore, an open-ended survey design was employed and parsed into topics for teachers to respond to. Informed consent was given as the first question to the survey. Inclusion criteria was any teacher in the United States that was teaching some aspect of their instructional week remotely. This ranged from two days remote to five days remote. Topics were listed in the survey as order of priority for research questions. Instructional strategies and decision-making were an important emphasis of this study and therefore, were listed first in survey design. How teachers connected with students and perceived their growth and developmental needs was a second priority in the research and therefore, appeared second. This survey design lends itself well to facilitating descriptive information about experiences. Participant inclusion and demographic questions are omitted participant descriptions.

Participants

While 19 certified teachers initiated the survey, only 18 met the inclusion criteria for this anonymous study. The 18 teachers who self-identified as a remote, hybrid, or a hy-flex teacher represented three states (New York 89%, Pennsylvania 5.5%, and Maryland 5.5%). Fourteen of the teachers (77%) indicated five years or less experience. One teacher had more than 15 years of experience. Three had between 11 and 15 years of experience.

During the 2020-2021 school year, four of the teachers taught completely in a remote synchronous setting four to five days per week, either from home or from their classrooms. One teacher started the year online, returned to the classroom for face-to-face instruction, then ended the year in remote instruction. The 15 teachers (72%) taught combinations of remote and face-to-face (two days remote synchronous/two days face-to-face; two days remote synchronous/ three days face-to-face; or started face-to-face, went fully remote.

Interview Analysis

The researchers coded all surveys for descriptive and qualitative data. The interview questions were a broad starting point for generating categories for analysis. Content analysis and Analytic Induction described by Goetz and LeCompte (1984) and Becker (1998) were used to synthesize and reduce the units of meaning by coding data into categories. Codes were generated when emerging themes and topics appeared in responses. These codes were then highlighted and categorized into themes. For a theme to be coded, there was consensus by both researchers on the emergence of the theme. The following themes emerged: Administrative Support, Strategies, Culturally Relative Teaching, Challenges, Progress Monitoring, Technology, Socio-emotional Concerns, and Teacher Education. The researchers reviewed the responses a second time to analyze the themes in categorical responses. The research team debriefed during the initial coding process to compare codes and agree on themes. A second debriefing occurred to discuss interpretation of themes and to analyze saturation of data for each theme.

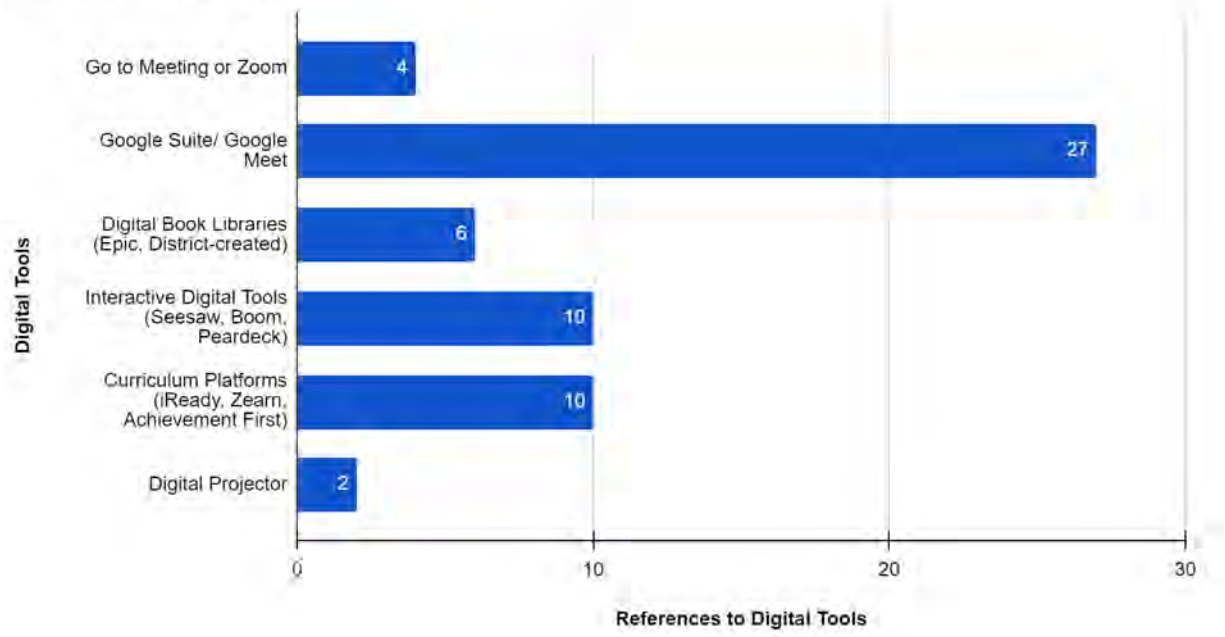
Results

Teacher Self-Efficacy Towards Technology Integration

Teachers reported using a variety of platforms (Zoom, Google Classroom, Google Suite, Go to Meeting) and technology tools (document camera/ELMO, Zoom screen-sharing, Google folders to organize assignments, Jamboard, digital books, Epic, Boom interactive flash cards, Google Slides, iReady, Google Street view for map planning, iReady, Screencastify, Seesaw, Creating interactive worksheets from a pdf, Peardeck presentations, student Choice Boards, and Prodigy) as part of their remote teaching experience. Teachers took advantage of Open Source materials such as the Achievement First curriculum and also utilized homegrown district curriculum resources created for remote instruction. Google Classroom and Google Suite were most referred to across the surveys as the learning platform supported by the districts. It is important to note that due to the extent of digital tools noted in the survey, the researchers made categorical decisions about digital tools in Figure 1.

Figure 1

References to Digital Tools



Note. Figure 1 represents the number of references to digital tools from teachers. When teachers listed multiple tools in one response, each reference was counted individually for each tool.

Fifty-six percent of the teachers felt their district provided significant support in the way of required team meetings, opportunities for collaboration and professional development opportunities. Teachers attributed their success to the support and guidance they received from their administrators. Teacher #5 noted, "I found that it was extremely helpful to have frequent meetings with our Instructional Design team. They seemed to be on the cutting edge of new features in Google and new apps that were more engaging for students." Teacher #1 also recognized the rapid changes in tools and shared "Teachers need to know why they are making the decisions they make. Tools will change and so we need to know why we make decisions and how to implement them effectively." Several survey responses indicated that teachers experienced their own personal growth. Teachers shared examples where they said, "I learned a lot" and "I became great at it." One teacher said, "I learned a lot about using Google docs to support writing" (Teacher #1). Teacher #5 said "I became great at using an ELMO and I will never go back. This is a really great instructional tool." Teacher #11 shared "I have learned a lot of different resources that I will continue to use while face-to-face. Different ways to keep them engaged, different hands-on activities, and social emotional brain breaks." Teachers discussed different ways they worked towards learning new technologies outside of professional development. Teacher #1 shared "We had weekly team meetings and as a grade level, we worked hard to stay on the same page" and Teacher #4 shared they were "mostly on my own... given some guidance at the beginning with where to start, but after that, it was all team-based decisions." The survey results indicate a generally positive attitude towards integrating technology and teachers attribute their support to administration, their instructional team, and

their own personal interest and pursuit to learn technology.

Teacher Autonomy

The study results indicated that 70% of the teachers who responded to the survey felt a great deal of autonomy or a moderate amount of autonomy as compared with their previous years of teaching. This is a significant change from the statistics reported from NCES (2018) that indicated a decrease in teacher autonomy throughout recent years. Perhaps this is a positive outcome of pandemic teaching for the profession as OECD (2021) supports opportunities to increase autonomy for individual classroom teachers and strengthen technological skills necessary for classroom instruction.

All teacher respondents felt supported by their administration, all but one noted they were given complete autonomy to prioritize curriculum and develop their own strategies based on the learning levels and needs of their students. One teacher shared their strategy for being required to pivot remotely due to school closures and classroom quarantines:

> I focused on the important standards and used them strategically. If our class went remote, I used that time to review important concepts rather than try to introduce new ones. I prioritized a lot and tried to make things manageable for both my students and I. With all of the changes, I made sure to not give homework. I gave weekly in class goals for extra things like iReady and prodigy. But with all of the struggles of this year, playing and relaxing their minds is important to me. (Teacher #12)

Another teacher shared their instructional decision-making process by explaining how they approached whole group and small group instruction:

> I made instructional decisions this year for synchronous learning based on the learning levels of my students. We are together as a whole group in the morning and at the end of the day. Throughout the time we are not a whole group, I am meeting small groups with students so they can get individualized support. For the students who are not on with me, they have seesaw assignments, iReady, and Zearn. They also have writing assignments to do each week. (Teacher #11)

Both examples illustrate the process by which teachers paced their instruction and also selected their instructional approach. These decisions were largely independent from district-level decisions and offered an opportunity and teachers' responses indicated they emphasized student growth and development rather than common benchmarks. However, when teachers reflected on their teaching and student growth, the responses were mixed. Teacher #1 shared:

> I honestly think there's been a lot of growth with students, just not in the traditional ways. My students had opportunities to work on time management and to do peer work together. They also learned how to use Google slides and docs.

However, Teacher # 4 shared "We were not allowed to refer [to special education] due to the pandemic but students were behind on critical life skills, likely due to lack of instruction. Students progressed at a slower pace and learned less content than anticipated." The teachers did not attribute specific reasons for

lack of growth, but responses to the technology questions infer that Wi-Fi and variability in family support at home dramatically influenced learning experiences.

Teachers reported "Workshop Wednesdays" and other professional development that often focused on learning new technologies were beneficial but were usually required components of their workday. Often, refresher workshops were provided for existing tools that teachers were under-utilizing when in the pre-pandemic setting. Other workshop topics focused on trauma, providing socio-emotional support, how to encourage or provide gross motor activities for students of any age, culturally relevant teaching, behavior supports such as teaching self-regulation, and general, pedagogical tips for teaching with an online platform.

When asked what strategies they used in online teaching, many teachers utilized strategies that went beyond the required expectations as they worked to find ways to help their students be successful. Forty percent of the participants specifically addressed differentiation. Teacher #11 stated:

> Strategies that I have found to be most effective is having small group sessions throughout the day. These groups are differentiated by their skills level. This has been extremely effective as each group of students can get individualized instruction to best assist and support what they need to succeed during this difficult learning situation.

Like the teacher above, others mentioned starting and ending their day with daily check-ins to make sure students had direction and to provide support on assignments. Additionally, strategies developed were to address the challenges of teaching during a pandemic. One teacher suggests,

> Using a limited amount of resources is best for my kids and their families to troubleshoot rather than throwing excess things at them to navigate. Home in on a select few necessary ones that your kids can use fluently. This will help limit questions, passwords, and confusion. (Teacher # 12)

Teacher #12 indicated that keeping the work predictable and providing choices helped to keep students engaged. This teacher stated that choice boards were ideal in limiting frustration since students could choose another assignment if they were confused and keep working rather than disengaging. They stated, "With choice boards, there's always something they could do. By making the work predictable and routine, it can help them feel confident with time management of assignments and grow more fluent with the resources used."

Culturally Reflective Practice and the Digital Age

While teachers reported that they used many of the same practices that they had pre-pandemic to be respectful and inclusive of the student's cultures, several noted they increased their cultural responsiveness due to increased awareness. Thirty-three percent of the teachers asserted they spent more time incorporating parents as resources by engaging parents in assignments, particularly culturally relevant assignments, and making sure that parents had a voice. They felt a positive outcome of the pandemic was that they spent more time connecting with families, and they had the unique opportunity to learn about cultures, celebrations, and traditions that would not have

occurred if students were in school. Teacher #13 shared:

> I paid more attention this year to celebrations that the students were having at home. For example, Ramadan. I had several students observing and because we were remote, we had this unique opportunity to talk about it and have them share their experiences from their home. Families also got involved as well. We spent time this year learning about countries which I also thought was a wonderful addition to our year that we had never done before in school.

Similarly, Teacher #3 shared that they "used many books that include different cultures as well allowing the students to make small crafts to send home that represent different holiday celebrations such as, Hanukkah, Kwanzaa, and the Chinese New Year." and Teacher #16 shared they "made sure that all of [their] materials represented diversity. [They] spent time learning about different countries using Epic books. [They] also made sure the videos we used were representing diverse people."

Others recognized that the home life for some students was difficult and there were some students who did not want to show their peers what their home life is like. Teacher #12 empathized with family challenges and shared:

> Do what you can! If kids are home, understand that their parents have to either watch them, find childcare, or bring them to work. I have taught my students as they sit in the car on their way to get groceries, in the gas station at their mom's work, and on devices they borrowed to try to make it work. We can't blame kids for a lot of the things that happen with remote learning. Teach them when you can, where you can.

Teacher #14 simply understood that basic needs were a priority and shared:

> The students rely on school for engagement with other students, trusted adults and for food. I focused more so on the social needs of the students because following Maslow Hierarchy, their basic needs need to be met first. When we were virtual I would utilize the family service coordinator to help get students what they needed but now that we are back in person I am able to do a better check in and help get my students what they need.

A common challenge revolved around technology issues such as internet access, poor internet connections, lack of available devices, and for younger children, lack of parental support. When parents left to do their own work, some children disengaged. One teacher talked about the creative problem-solving approach by one parent- teach them where you can- the child was seen at the parents' work environment, in the car, even at a grocery store.

The teachers also recognized the stress families faced and respected the challenges that ensued as parents tried to learn to navigate new and unfamiliar technologies. Fifty-eight percent of teacher respondents noted they needed to focus on families as well as their students. They reported checking in with students and families throughout the day to check on assignments, provide assurances and encouragement. Forty-two percent of teacher respondents reported that students had internet problems. One stated they would put together hard copy materials, and deliver them to student's houses, so these students did not fall behind. Student time

management was addressed by 21% of the teachers who reported that while some students were organized and good time managers, others simply were not. Additionally, often background noise was an issue which caused audio difficulties or was distracting to not only the student but the entire class. Further concerns included students losing access to food and trusted adults, and the setbacks students who were socially isolated or had difficulty with relationship building that occurred. One teacher developed a "lunch buddies" program, where students could socialize over lunch. Conversely, they stated students needed a break from the computer so many students did not attend. Teacher #13 advised:

> Hold individual meetings online for students that last for 30 minutes at the most that allow them to openly talk and discuss practically anything with you. Ask questions about work or if they are comfortable their life, make it fun and relaxing by playing games or discussing something they enjoy or a common interest you both halve. The students are just as stressed out as we are.

Progress monitoring was also challenging for the participating teachers. One teacher spoke of using iReady, an instruction and assessment program. Teachers noted that many of their students lost ground academically from their previous scores, so while teachers and students worked hard to address unfinished learning, it looked like no progress was made. Fifty percent of the teachers asserted that their students made growth, just not in the traditional ways. Teachers noted their students learned about Google tools, time management and organizational skills, and demonstrated growth in other ways that are not measured. The remaining 50% of respondents reported students progressed at a slower pace, and special education students lagged further behind their peers academically as well as losing access to learning critical life skills. Teacher #4, a special education teacher stated, "students progressed at a slower pace, and learned less content than anticipated." Lack of in person one-to-one or small group instruction affected students who required hands-on learning, particularly in math. Additionally, "the inconsistencies of learning formats did not help" posits Teacher 15. Noticeably absent, teachers did not address how they implemented accommodations and modifications in remote settings, other than to say they used differentiated instruction. One teacher stated they planned their instruction around IEP goals.

Several teachers indicated that keeping routines in place helped students stay accountable as they learned the expectations of what to do and when it was due. As one would expect, first year teachers said "I have nothing to compare it to" subsequently having a more "go with the flow" attitude. Teacher # 12 prioritized structures and routines to support home learning:

> Choice boards, flexibility, online assignments. I like to have "online days" at school, even face to face about once a month. I upload work like I would if we were asynchronous. Then I have the kids practice navigating finding their assignments and completing them, while they're face to face in my classroom. It allows them to practice but with me there to help. That way, if we go remote, they know how to find their work.

Teacher #13 shared that they "structured down time" to support students receiving additional support at home or from an interventionist. Given current research on teaching during the

pandemic, it begs the question, "How should teacher education programs be preparing teacher candidates to be prepared for remote instruction?" Our participants recognized that technology tools are ever changing and assert teacher candidates need to know why decisions are made, and how to implement new technologies effectively. They also noted that teacher candidates need to learn how to effectively engage and focus students when using online platforms. Understanding various platforms would also be helpful, as participants stated there is a lot "out there" and colleges tend to teach the platform they use. Subsequently, if your college is an Apple School and you are hired by a district that uses Google Suite or a learning management system like Schoology, there is an additional learning curve involved. Teacher candidates need practice with a variety of platforms and tools. Participants wished remote teaching had been included within the content of the Technology courses they took. Additionally, having some understanding of online classroom management would have been helpful. Teacher candidates not only need versatility, but flexibility. To sum it up, Teacher #5 stated "It was a challenging year but find the glimmers of sunshine every day and you'll be fine. My team was an amazing group of people and that made coming into work every day a bit easier."

Discussion

This study sought out to explore the experiences of teachers who quickly pivoted to remote teaching as a result of the COVID-19 pandemic and how their approaches to remote teaching can inform teacher preparation programming. The study aimed to understand their experiences with instructional practices and their decision-making efforts as they related to technology, culturally responsive practices, and academic support. This study revealed valuable lessons learned from the school closures resulting from the COVID-19 pandemic. Schools were forced quickly into remote learning, and this presented an opportunity to increase autonomy for individual classroom teachers and strengthen technological skills necessary for classroom instruction. This sentiment is supported by OECD (2021) which described the priority of school efforts:

> Central to education recovery programs should be a focus on supporting a teaching profession that is actively engaged in the design of learning environments and public policy, in the advancement of professional practice, and in creating a stronger professional work organization. Many teachers have also responded to the pandemic by creating their own just-in-time professional development. A lesson from the pandemic is that teachers need to feel empowered to exert their professionalism in the use of technology as part of their teaching (OECD, 2021, p. 5)

The sense of autonomy and empowerment expressed as lessons learned globally is a sentiment shared by the participants in this study. Also mentioned by OECD (2021) as a lesson learned was the necessary practice of just-in-time professional development, which was also a valued practice emphasized by several participants for technology training and resources. Subsequently, paying attention to teachers' lived experiences and listening to teachers' voices is critical and is a reminder to local school districts to value the perspectives of educators as it relates to their instructional expertise and their digitally-rich passions.

A key consideration that emerged from the study is the continuation of technology

training and preparation of teachers in the classroom for emerging technologies. Although most felt a high level of autonomy, they felt limitations as it related to teaching remotely without proper preparation to do so. Teacher preparation programs need to be mindful of the rapidly evolving technological advancements in classrooms and how to prepare teachers for future classrooms. One clear solution to support digitally-rich instruction and integration of technology with teaching is to enhance the integration of the TPACK model across all teacher preparation courses and prepare future teachers for effectively determining which technological tools align with which pedagogical practices. Voithofer and Michael (2021) offer a second suggestion that is equally important, which is making clear connections between classroom practice and technological integration. If teacher candidates have demonstrated experience with determining which technological tools to use during classroom instruction, they are more likely to take future steps to implement new technologies as they emerge. An emerging consideration as a result of this study is exploring in what ways K-12 schools continue to facilitate learning centered on TPACK and ISTE standards post-COVID-19 era.

This study also sought to understand in what ways teachers integrated culturally relevant practices remotely. Prior to the study, the researchers had surmised this may be an area lacking in remote instruction but were surprised to learn the depth and scope of culturally responsive practices across all survey participants. Teachers shared numerous strategies that they used to emphasize culturally reflective practices. The teachers describe culturally relevant practices in two different ways: (1) acknowledgement and value of student identity through communal experiences and (2) integration of digitally-rich instructional culturally relevant practices. Teachers who prioritized both practices ensured there was time embedded in their schedule to learn about individual students and their families as well as incorporation of tools that included diverse texts and media. Teachers that emphasized cultural celebrations with families embedded these opportunities into the schedule as well. By having an opportunity to virtually experience a student's home, teachers could easily incorporate family-engaged activities into the day. The teachers who responded to the survey made efforts to incorporate culturally relevant text in a variety of ways, but it was clear that this was an intentional effort and was also heavily influenced by the digital tools available to them. The sentiments shared by Mahmood (2020) were confirmed in the study results. Most teachers who responded to the survey spent time on communal learning experiences that valued and celebrated individual identity and diversity. While not mentioned as a study finding, the ability to engage families remotely more easily offers an opportunity to extend this practice beyond the COVID-19 pandemic era. The literature and digital tools emphasizing digitally-rich culturally relevant practices is lacking and therefore, an obvious next step for future research.

Advice for Teacher Preparation

Most of the recommendations practicing teachers had for teacher preparation programs revolved around technology. Forty-four percent of the respondents noted they felt unprepared for a switch to remote teaching. Participants noted it would have been helpful if they learned Google platforms (such as Google Suites, Google Classroom) in their pre-service program so they could "hit the

ground running" since these teachers were expected to suddenly use them without time for a learning curve. Teachers # 13 and #15 noted remote teaching should be included within the class Educational Technology, with Teacher # 13 specifying, "That class covers a large variety of different applications or programs that can be used, I don't see why different remote teaching strategies and programs can't be included." Teacher preparation program developers should cue into this feedback and consider ways to embed remote teaching experiences into educational technology courses. Teachers #12 and #13 both assert that pre-teachers should not only have instruction but also opportunities to practice in remote instruction with actual K-12 students.

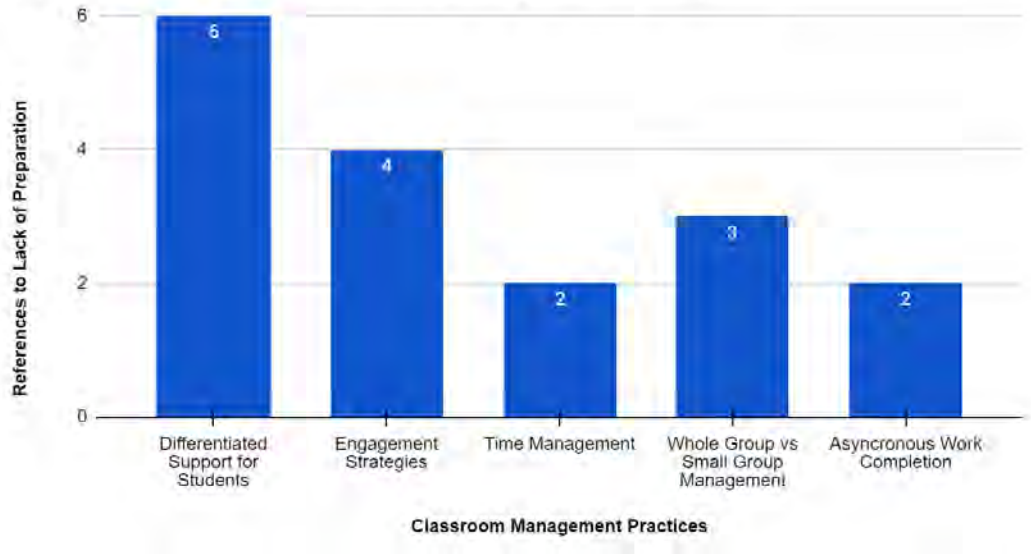
Other suggestions related to technology revolved around including or improving pre-teaching technology experiences with not only learning digital tools but creating digital materials. Teacher #1 asserts "Making digital tools is worth it. These can have lasting use even in face-to-face classrooms" and Teacher #12 states "Use projects that will prepare them to do it (remote learning) on their own. Have them practice creating (digital) materials, explaining how to do things, and prioritize." Teacher #13 suggests "Provide different opportunities for prospective teachers to try and experiment with different remote teaching materials with a group of other students or, if possible, a small group of students within their field placement class." These teachers indicated that the time they took to learn how to create and use digital materials caused additional stress during an already stressful time in their practice.

Classroom management and engagement in remote environments was another area where teachers voiced feeling underprepared.

Note. Figure 2 represents the number of references to the lack of classroom management preparation from teachers.

Figure 2

References to Lack of Preparation in Remote Teaching Classroom Management



References were categorized during analysis into the five practices noted in figure 2. Teachers asked, “What do you do if students never log on? How do you address misbehavior online?” “How do you keep students engaged?” “How do you handle background noise?” indicating these scenarios were not covered in technology classes. One notable absence in the data were examples of how teachers implemented classroom management practices for remote instruction, yet this was phrased as a persistent challenge for teachers. While teachers indicated this was a considerable challenge they faced, there appeared to not be any strategies or technological tools to support creating a prosocial remote classroom community.

One thing teachers agreed on was that remote instruction is here to stay. Remote instruction may now replace snow days, address bussing shortages, and provide additional support. Teacher #15 commented, “It seems that remote instruction will not disappear entirely, so it would be wise to prepare teachers for this possibility. Consistent research and practice with available technology resources is key!” Teacher #16 shared a similar sentiment that

> I think this [remote teaching] may be something that remains now that we know it's possible and I think it has a long way to go to be an effective practice.” The teachers also agreed that decision-making with remote teaching practices was something that teacher preparation programs should incorporate into educational technology courses.

Teacher #1 commented,

> Teachers need to know why they are making the decisions they make. Tools will change and so we need to know why we make decisions and how to implement them effectively” and Teacher #4 agreed and added “I think teachers should be much more versatile in teaching to a remote group. It's a great skill to have.”

Teachers also felt overwhelmed by the socio-emotional concerns of their students and families. Although all the teachers voiced significant concerns about the social emotional state of their students, 56 % of the teachers specified reasons for their concerns. Teacher respondents, like Aguliera & Nightingale-Lee, (2020) worked to support their students/families. Teacher # 14 cited Maslow’s Hierarchy asserting “basic needs need to be met first.” Teachers connected families with community resources, addressed student anxiety and trauma, and worked to engage family members in remote schooling practices. Teacher #4 shared how lack of family engagement contributed to challenges to support students academically and socially. They said,

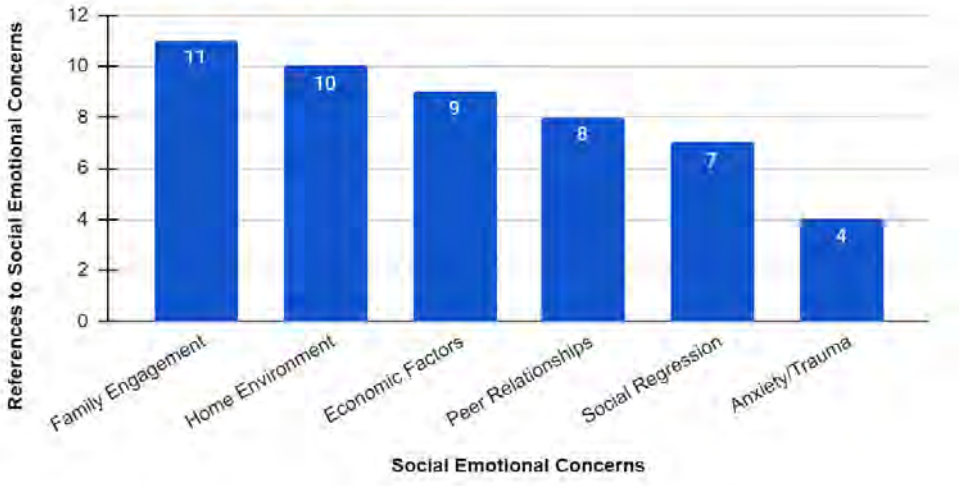
> Some of my students have parents at home who are not involved in their education. My students are 6-7 years-old who require support and

> encouragement for their education. This made it very hard to get them engaged and doing their Seesaw work to the best of their ability.

Of further concern, as Mahmood (2020) noted, online platforms allow for a window into their students' lives. Teachers reported students were not always comfortable sharing what their home environment was like with teachers or peers. When students did not turn on their cameras, it made it more difficult for teachers to judge engagement.

Figure 3

References to Social Emotional Concerns



Note. Figure 3 represents the number of references to social emotional concerns for students and families and what teachers attributed to those concerns. References were categorized during analysis into the six noted concerns noted in figure 3.

Limitations

There were several limitations in the study. First, there were a small number of participants within a limited geographical area, making generalizability of the findings limited. However, this study points to several findings that warrant further continued research such as culturally responsive digitally-rich tools and teacher preparation for remote teaching. Second, the uniqueness of how districts implemented remote learning, supported their teachers, and availability of technology, both devices and internet, impacted results. Teacher candidates need to be prepared to step into remote learning with an arsenal of skills that can be utilized in any area. Finally, this study was an exploratory study of how a small number of teachers felt about their technological skills and strategies when quickly pivoting to remote teaching. The study findings should not be used to generalize how schools in the United States responded to the COVID-19 pandemic. There is great variability in response efforts across counties, states, and even districts.

Conclusion

All the teachers in this study had concerns about the social emotional well-being of their students. While they took care to address the needs of their students, they felt underprepared to address the scope of their needs. Teacher preparation programs need to address social emotional factors and strategies

in program content so as teachers, they can advocate for their students.

Further compounding these concerns, more than 140,000 students in the United States lost a primary or secondary parent or caregiver due to the pandemic (Hills et al. 2021). Globally, 5.2 million children have been orphaned by Covid, likely an underestimation due to gaps in international reporting (Haseltine, 2022). Teachers will be expected to support this vulnerable population who may have challenges to learning, relationship building and family support.

Teachers also advised higher education programs to include a variety of digital experiences in technology courses. They noted that it is not enough to know a specific platform (like knowing Google Classroom or being an "Apple Teacher"). They asserted you never know what the school you will be working at when you are hired will be using. They also suggested practicing remote instruction with real K-12 students, practicing using digital tools and creating digital materials. One and done experiences where teacher candidates learn about technology and move on are not comprehensive enough. Teachers indicated the time to learn and practice these types of skills are best in low stress environments, instead of, as teacher # 4 states, "building the plane while flying it" like they did with a rapid shift to remote instruction. They also noted that they felt ill prepared for classroom management in an online environment.

This study focused on effective practices and instructional strategies used by remote teachers to address academics, social emotional development to support students, with the goal of informing teacher education higher education programs so they can effectively prepare future teachers. Additionally, current teachers may learn from the experiences of others. The study met an intended outcome of including teacher voices in how to take lessons learned from COVID-19 to inform next steps for future teachers.

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Appendix 1

Survey on Teacher Experiences During Remote Teaching

1. What strategies have you found most effective this academic year for synchronous remote learning?
2. What strategies have you found most effective this academic year for asynchronous remote learning?
3. What strategies have you learned for remote instruction that you will continue to use in face-to-face settings?
4. How did you make instructional decisions this year for face-to-face or synchronous learning?
5. How did you make instructional decisions this year for asynchronous learning?

Student Needs and Community Building

6. How would you describe the academic growth of your students this academic year as compared to other years?
7. What strategies have you used to address culturally relevant teaching practices in remote instruction?
8. How do social and economic disparities impact students in remote instruction and how have you addressed them?
9. What social-emotional implications have you noticed with students in your class, relative to Covid 19 restrictions, such as social distancing, student interaction, mask wearing.

Teacher Autonomy

10. How much autonomy did you have in decision making?
11. Did your school provide faculty development opportunities? If so, were they optional or required? What topics were covered?

Teacher Preparation Programs

12. How do you think colleges should be preparing new teachers for remote teaching?
13. Are there any technology resources that should be part of teacher education programs?
14. Regarding remote instruction, what advice would you give a new teacher entering the field next year now that you have experienced teaching remotely?
15. What advice would you give teacher preparation programs about remote instruction now that you have experienced teaching remotely? Is there anything else you would like to share?