The Covid-19 pandemic began in the late months of 2019 and by Spring of 2020, in an effort to limit transmission of the virus, schools across the globe had closed and transitioned to emergency online teaching which may have disrupted their current learning procedures (Jelińska & Paradowski, 2021). In the United States, over 13,000 school districts completely closed down during this time (Peele, 2021). Schools began to offer multiple types and modes of instruction in order to continue providing instruction for their students (Peele, 2021). One of these was emergency remote teaching (Hodges et al., 2020). Therefore, during the Covid-19 pandemic, reverting to emergency remote teaching left many teachers and faculties at the mercy of self-learning because campus and school support personnel for online learning were not able to provide support to a huge pool of teachers and faculties (Hodges, et. al., 2020). On the other hand students too, were left at the mercy of self-learning as many students did not have at-home parental support. Parents may have to be out to work, or just did not have the expertise to help their students. Students, during this at-home period not only had to continue navigating their academic duties but may have also had to share household duties like taking care of younger siblings. Added to this was the issue of unstable internet connection which made taking online classes a challenge for many students, especially in rural and remote areas. Even if there was internet at home, the available bandwidth may have been shared by multiple devices for multiple children at home. Another issue that teachers noticed was that their students were fast losing engagement. For secondary students, school is a crucial part of their lives where they can interact with their peers and teachers in a more informal manner. Therefore, losing that kind of social connection may have made them less motivated to engage with their academic content that was only exacerbated by the stress of the disease and staying at home.

This study also explores secondary teachers’ experiences while teaching online (who taught online during the Covid-19 pandemic), the challenges they faced, what instructional practices they engaged in, and which of these practices they will be incorporating into their teaching practices when schools return to face-to-face teaching.

INTRODUCTION AND PROBLEM STATEMENT

The COVID-19 pandemic began in the late months of 2019 and by the spring of 2020, in an effort to limit transmission of the virus, schools across the globe closed and transitioned to emergency online teaching (Jelińska & Paradowski, 2021). This disrupted schooling for over 80% of students worldwide (International Labor Organization, 2020; UNESCO, 2020). Currently K-12 classrooms integrate technology both for curriculum and policy (Chapman et al., 2010; Warschauer et al., 2004) The emphasis on technology integration was critically mandated by The Elementary and Secondary Education Act of 2001 fort K-12 education (Barrett et al.,
However, in K-12 the use of technology is not homogenous and is affected by multiple factors, such as policy, attitudes and belief of teachers toward technology, and geographic location of schools and students (Dolan, 2016). Further, the COVID-19 pandemic upended the education and technology integration plans for educational institutions all over the world and exacerbated existing inequalities in the implementation of technology in education.

Reverting to emergency online teaching left many teachers and faculties at the mercy of self-learning because campus and school support personnel for online learning were not able to assist the huge pool of teachers and faculties (Hodges, et. al., 2020). While the move to online teaching and learning was inevitable, many learners, found that online schooling had certain challenges due to lack of access, lack of resources, lack of infrastructure, unavailability of devices, and a lack of qualified teachers to assist with online learning (Dube, 2020). To transition to online teaching, teachers had to adjust their instructional strategies and pedagogies (Mahmood, 2020). Some of these instructional strategies might have been useful for teachers while some were not. This study explores the experiences of secondary teachers who taught online during the COVID-19 pandemic, including the challenges they faced, the instructional practices they engaged in, and which practices they planned to incorporate into their teaching when schools returned to face-to-face teaching.

**Background**

The COVID-19 pandemic created one of the largest disruptions in the history of education systems, affecting nearly 1.6 billion learners in more than 200 countries. Closures of schools, institutions, and other learning spaces impacted more than 80% of the world’s entire student population from tertiary to secondary and in higher education spaces. This contributed to far-reaching changes in all aspects of our lives, not only education. Social distancing and restrictive movement policies disrupted traditional educational practices significantly. Reopening schools after the relaxation of restrictions was another challenge with many new operating procedures put in place.

Within a short span of the COVID-19 pandemic, many researchers shared their works on teaching and learning. Several schools, colleges, and universities discontinued face-to-face teaching and sought ways to move learning online. There was a fear of losing the 2020 academic year, or even more, so people in the education community were looking for ways to continue instruction. It was therefore crucial to innovate and implement alternative educational systems and assessment strategies. One of the modes was emergency remote teaching, not to be confused with traditional online teaching. The COVID-19 pandemic provided an opportunity for educators to introduce digital learning on a mass scale. This study aims to provide a report on the impact of the COVID-19 pandemic on online teaching and learning, while upholding and detecting the voices of teachers about their experiences while teaching during the pandemic.

**Conceptual Framework**

There are several frameworks for technology integration and online learning in K-12 environments during a non-crisis situation. However, the pandemic did not give teachers the opportunity to implement an intentional and well-designed and well thought-out online teaching plans (Ewing & Cooper, 2021), so those established frameworks were not a valid basis on which to situate this study. There was an immediate and critical need to apply alternative educational and assessment strategies that could be implemented online (Pokhrel & Chhetri, 2021). Teachers
took recourse in using a variety of online platforms to continue instruction and student learning. For this study, the Emergency Remote Teaching Environment (ERTE) framework provided an appropriate conceptual structure (Whittle, et al., 2020).

During the COVID-19 pandemic, teachers faced an unprecedented and shifting landscape for the continued education of their students. Emergency Remote Teaching Environments (ERTE) are a response to a crisis situation and vary, therefore, from the design, meaning, and implementation of frameworks for pre-planned online teaching. ERTEs propose rapid development of instructional support to address periods of crisis (Hodges et al, 2020), during which online teaching environments can be “understood circumstantially and supported provisionally” (Whittle et al., 2020, p. 312). Figure 1 shows a model of the Emergency Remote Teaching Environment framework (Whittle, 2020).

Figure 1
The Emergency Remote Teaching Environment Framework

![Figure 1](https://example.com/figure1.png)


The ERTE framework positions the teacher as the first responder to an educational crisis, because they are most knowledgeable about the resources they can shift and can establish contact with the students to apprise them of the current expectations (Whittle et al., 2020). The framework has four non-linear and iterative steps: inquiry, classifying available resources into constants and variables, designing relevant educational experiences, and evaluating remote teaching experiences. This iterative approach is critical for both the ERTE framework and unforeseen changes in the educational landscape during a crisis that leads to shifts in resources.
In this study, I used the ERTE framework to compare the findings of the study to the factors within the framework for a rich and meaningful data set.

**Theoretical Framework**

A theoretical framework was used in this study to focus on the online teaching experiences of secondary K-12 teachers during the COVID-19 pandemic and explore the relationships among related components (Ravitch & Riggan, 2017). A theoretical framework provides space for the researcher to define some important concepts related to the study and illustrate how the research fits within those concepts and then builds on existing knowledge of the researchers (West & Heath, 2009). A theoretical framework allows the researcher to make a robust sense of the data with which to work with, (Neuman, 1997) while not limiting the data to the confines of the framework. Therefore, the data in this study will not be bound or limited within the framework but freed up to create new meanings and to assign weight and significance to teachers’ voices, feelings, and emotions.

The Strategic Teaching Framework (STF) was used for this study (Jones et al., 1993). This framework includes seven critical dimensions that describe teaching and learning environments.

**Principles:** STF consists of seven critical dimensions: (1) Goals and metaphors that drive learning and instruction: situate all learning within authentic contexts; (2) Learner characteristics, responsibilities, and values: develop rich mental models of classrooms by presenting examples of exemplary classes for a full class; (3) Teacher characteristics, responsibilities, and values: provide multiple perspectives on classroom activities from various experts; (4) Tasks that define the nature and level of achievement: anchored instruction; (5) School characteristics (context) that support teaching and learning: provide flexibility of time and access, and cost-effective resources; (6) Principles of sequencing: the learner works to identify their own needs and will sequence their experience in a way which will maximize their own learning; and (7) Principles of assessment: provide reflection opportunities.
Importance of the Study

COVID-19 provided an opportunity to leverage digital learning on a much greater scale than before the pandemic (Dhawan, 2020). Despite the catastrophic situation created by the pandemic, online learning students were mostly able to continue learning without major interruptions (Ferri et al., 2020). Teachers strived to provide continual, equitable, and universally inclusive education to all students, but many students without access to devices or a stable internet connection were left out. School closures meant that students were not able to access the infrastructure they had always relied upon that ensured equitable public education, such as schools, textbooks, technology, and resources like teachers, classrooms, and meals. Despite the presence of online instruction and other online learning and teaching resources, many students did not have any access to reliable internet connection or even personal devices. These were structural and socioeconomic barriers to the continuance of online education (Doucet et al., 2020).

Before the pandemic, the primary purpose of online and distance education in any form was to provide access to education and instruction to those students who otherwise did not have
any access to education for many reasons like being in geographically remote location, or attending schools with courses they wanted to pursue. As its purpose expanded to support continuity of instruction, the participation in online learning broadened throughout the educational ecosystem (Lockee, 2021). The unplanned transition to emergency online learning revealed a gap in research about what online learning is and the best practices used by educators (Pokhrel & Chhetri, 2021). The flexibility of teaching and learning that resulted from the COVID-19 pandemic situation may likely transform the expectations of teachers and students, with remnants of emergency online teaching thus blurring the lines between online and face-to-face education (Lockee, 2021). My prior study focused on rural elementary schools and this study will provide a continuum to understand how COVID-19 affected K-12 schools overall.

I also chose secondary school as it is a time when peers become more important than family and parents, and not being with their peers at this stage in students’ lives may take an emotional toll on them (Hates, et al., 2021). This study provides information about the experiences of secondary teachers who work in schools and helps amplify their voices (Pryor et al., 2020). Although more than 4.1 million of America’s school-aged students go to secondary schools, not much is known about their educational environment (Bouchrika, 2020). Even less is known about their teacher voices, school administration, and leadership (Lavalley, 2018).

**Purpose of the Study**

The presence of COVID-19 pandemic upended the schooling and education plans for 2020 for most school districts and for much of the educational community. Almost all face-to-face classes, including labs, were cancelled and it was decreed that faculty may move their move their classes online to help control the spread of COVID-19 virus (Kronke, 2020). So, teachers, in order continue instruction of the students, transitioned to emergency online teaching (Jelińska & Paradowski, 2021) as one of the forms of continuing education for their students, especially for the ones who had access to stable internet connection and had their own devices.

Online education has long been viewed as an alternative method of delivering and receiving education, particularly suitable for adult learners who were seeking higher education opportunities to better their circumstances (Lockee, 2021). So, if education has to be moved online, it affords the enablement and flexibility of learning and teaching anywhere and anytime, but in the COVID-19 situation the speed with which faculties had to move to online instruction was unprecedented (Hodges, et al., 2020).

Though teachers and school districts had various policies about online education, because of the quick transition to online learning there were gaps in assessing how online learning should or should not be leveraged by education institutions (Jandric, 2020a). Schools and other educational institutions created and supported teachers with professional development through options like drop-in sessions, free webinars, blog posts, emergency policy documents, social platform groups (Doucet et al., 2020), and even lessons learned from earlier university lockdowns (Czerniewicz, 2020). Teachers had to adjust their instructional strategies so that students could adjust to their new mode of online learning (National Academy of Sciences, 2020). For example, researchers found that during the emergency remote teaching phase, students faced a lack of social interaction and teachers recognized this important aspect and prioritized student engagement by adjusting their instructional strategies for online teaching (Starkey et al., 2021). The limitations of the pandemic also created an opportunity for teachers to test new instructional strategies to teach curricular concepts (Lockee, 2021). Though many of the instructional approaches may have been forced and hurried, it gave teachers an opportunity to
rethink issues like lengthy “seat time,” interaction with students, and learning principles that may
be beneficial for student learning (Lockee, 2021).

The sudden shift to online learning affected both students and teachers. In addition to
issues with access, some students faced psychological and emotional distress and were not able
to engage with learning (Pokhrel & Chhetri, 2021). Teachers began prioritizing students’
emotional well-being over their education, and many schools and school districts adopted a
“Maslow before Bloom” approach that prioritized a child’s total well-being (Doucet et al., 2020).
Prior research on the impact of significant societal changes on teachers (Malinen et al., 2018)
suggests that teachers were also vulnerable to the negative impacts of the COVID-19 crisis on
education (Collie, 2021).

As noted, e-learning tools played a critical role during the emergency online teaching
phase in facilitating student learning (Subedi et al., 2020). For emergency remote learning to be
successful, it was necessary to gauge staff and student readiness and offer support, as needed
(Subedi et al., 2020). A one-size-fits-all online pedagogy does not work (Pokhrel & Chhetri,
2021) and different approaches to online learning are required for different subject areas and age
groups (Doucet et al., 2020). Despite various instructional strategies used by teachers, the best
practices for online teaching and learning for a pandemic-like situation are yet to be explored
(Petrie, 2020). Online learning relies on the technology expertise of both teachers and students,
and pedagogy used for face-to-face learning environments is often not applicable to online
learning (Pokhrel & Chhetri, 2021). Teachers need to adapt their teaching to use relevant
pedagogy and instructional strategies for online learning depending on their and their students’
technology expertise and access (Pokhrel & Chhetri, 2021).

**Research Question**

The purpose of this study was focused on how secondary teachers experienced teaching
during the COVID-19 pandemic and how it impacted their students. Therefore, this study will
examine the following research question (Kim & Bagaka, 2005):

- **RQ 1:** What were secondary teachers’ perspectives on the impact of emergency remote
teaching on their students as they returned back to face-to-face classes?

**Terminology and Constructs of the Study**

*Critical Incident Technique:* A systematic procedure that ‘encompass factual happenings,
qualities or attributes, not just critical incidents … its capacity to explore differences or turning
points … its utility as both a foundational/exploratory tool in the early stages of research, and its
role in building theories or models’ (Butterfield et al., 2005, p. 480). This term is sometimes
used alternatively with Critical Events Analysis (Butterfield).

*Devices:* Any physical unit of equipment that contains a microcontroller or computer can
be termed as a device. Some examples are laptops, tablets, and smartphones.

*E-learning:* Leveraging digital and electronic technologies to access educational
curriculum and resources. It is sometimes used interchangeably with online learning.

*Emergency remote teching:* A temporary shift of instructional delivery mode to an
alternate mode due to a crisis situation.

*Instructional practice:* The means through which teachers help students achieve learning
outcomes. Instructional practices are aligned with learning outcomes. For example, if a learning
outcome of a course is that at the end of the course students should be able to think critically
about world geography, teachers must help students have learning experience that will allow
them to practice thinking critically. The difference between instructional strategy and practice is that the former informs the tasks to be done and what is to be achieved (such as brainstorming ideas for an inquiry-based learning unit) and the latter informs how to do it. So, an example would be a classroom activity that the teacher designs that allows students to brainstorm ideas.

In **Instructional strategy**: A technique that teachers apply to ensure that students learn the academic content. The goal is to create independent learners who are able to apply their learning.

**Internet**: A wide network that allows different computer networks to connect to one another, access, and create information.

**K-12 secondary schools**: The range of publicly supported primary and secondary education.

**One-to-one**: A term applied to programs that provide all students in a school, district, or state with their own laptop, tablet computer, or other mobile computing device. The term refers to one computer for every student.

**Online Teaching**: A mode of education that is conducted in a fully virtual or online environment and is well planned. This term is often used interchangeably with e-learning or internet-based learning and may be used for distance learning purposes.

**Pedagogy**: The study of teaching, including the theory and practice of teaching, the strategies used to teach, specific teacher-student interactions, content used, the manner in which content is presented to the learners, and the combined goals of the teachers and the learners.

**Technology integration**: The use of technology to improve student learning experiences aligned with the curriculum.

**Technology use**: Using technology that is not necessarily aligned with any curriculum or to improve student learning experiences.
LITERATURE REVIEW

The purpose of this basic qualitative study (Merriam, 2002) was to explore secondary teachers’ experiences while teaching online during the COVID-19 pandemic: the challenges they faced, the wins they experienced, the instructional practices they engaged in and which of those practices they will incorporate into their face-to-face teaching, and their feelings and emotions about the pandemic and online teaching. This literature review provides an overview of topics that support a broader understanding of themes related to teaching and learning during the COVID-19 Pandemic. It is divided into the following subsections:

1. COVID-19 Crisis
2. Educational Challenges During the COVID-19 Pandemic
   a. Teachers’ Responses and Experiences During the COVID-19 Pandemic
3. Teaching and Learning During the Pandemic
   a. Teaching Online
   b. Emergency remote teaching
4. Instructional Strategies Used During the COVID-19 Pandemic
   a. Pedagogy For Continuing Online Instruction
   b. Parental Community

I began the literature review by looking up search words in Google Scholar and ERIC, focusing on the most recent studies about COVID-19. To contextualize this study and the findings, I began my literature review with a history of school closures to understand previous attempts to continue education of children during the closures. Then I looked at literature about worldwide and nationwide school closures due to the COVID-19 pandemic and the challenges faced by the education community as a whole as they transitioned to emergency remote teaching (Hodges, 2020). I also looked for teachers’ reactions and their voices during the COVID-19 pandemic. Although research is scant on this very recent phenomenon, the studies that have been published begin to indicate how educators experienced this transition, helping to contextualize my research.

COVID-19 Crisis

The COVID-19 pandemic began in the late months of 2019 and by spring of 2020, in an effort to limit transmission of the virus, schools across the globe closed and transitioned to emergency online teaching (Jelińska & Paradowski, 2021). The World Health Organization (WHO) officially identified the COVID-19 as a pandemic (2020) and this announcement disrupted schooling for over 80% of the students worldwide (International Labor Organization, 2020; UNESCO, 2020). Reverting to emergency online teaching left many teachers and faculties at the mercy of self-learning because campus and school support personnel for online learning were not able to provide support to the huge pool of teachers and faculties (Hodges, et. al., 2020). The United Nations Educational, Scientific and Cultural Organization (UNESCO) estimated that nearly 100 countries had already issued orders to close down their educational institutions in order to limit exposure (Ross-Hain, 2020). Approximately 80% of students around the world were affected by school closures, meaning that their education had to be continued online (Education, 2020). In the United States, between February and May 2020, 48 states, four U.S. territories, the District of Columbia, and the Department of Defense Education Activity schools required closure for the remainder of the 2019–2020 school year (The Coronavirus Spring, 2020).

In February 2020, Indiana Governor Eric J. Holcomb, in Executive Order 20-02 recognized the Coronavirus as a pandemic (Executive Order Declaration of Public Health
Emergency, 2020). In May 2020, in Executive Order 20-05, the Governor stated, “All K-12 schools in Indiana, public or private, shall close and cease in-person instruction through May 1, 2020” (Executive Order Declaration of Public Health Emergency, 2020). According to Executive Order 20-05, school buildings were closed and in-person instruction halted temporarily, with the school buildings mandated to be available for community use as deemed necessary in the pandemic situation (State of Indiana Executive Order 20-05, 2020). The transition to emergency learning in Indiana had begun similar to other states in the nation. While the move to online teaching and learning was inevitable, many learners found that online schooling presented challenges due to lack of access, lack of resources, lack of infrastructure, unavailability of devices, and a lack of qualified teachers who could assist with online learning (Dube, 2020). To be able to transition to online teaching, teachers had to adjust their instructional strategies and pedagogies (Mahmood, 2020).

The Indiana Department of Education published *Indiana Continuous Learning Guidance* in March 2020 to aid educators in understanding how to continue the teaching their students online. It included critical aspects of online teaching and learning: a continuous learning framework, recommended activities for students, social-emotional learning, educator and student wellness, family partnerships for online learning, and technology guidance (Indiana Continuous Learning Guidance, 2020).

**Educational Challenges During the COVID-19 Pandemic**

The unprecedented disruption to education during COVID-19 pandemic instigated multiple challenges for administrators, teachers, students, and families that they were not prepared for. School administrators, district leaders, and principals had almost no training in managing schools during a crisis situation. Teachers were now confined to their homes, their existing lesson plans falling short of the current needs, physically removed from their students, and quickly learning and transitioning to new technology platforms to continue teaching (Baird, 2020). Studies on K-12 settings during the COVID-19 extensively looked at online learning, and student and teacher well-being. Dorn et al. (2020) discussed the learning loss that was happening as a result of online learning during the pandemic that was especially pronounced for students from low socio-economic background (SES), and those with Black and Hispanic heritage. These students not only faced loss of learning, thus exacerbating existing learning gaps, but many were also forced to drop out for different reasons like family poverty, lack of learning space at home, or food insecurities (Dorn et al., 2020, Ferri et al., 2020). The inequalities during school closures were amplified due to a lack of access to resources including devices for online learning and stable internet connection; a lack of physical spaces to continue learning from home among students from underserved, low-SES, or marginalized backgrounds; and a lack of support for home-based learning for students from underserved, low-SES, or marginalized backgrounds (Ferri et al., 2020). To overcome these concerns, some researchers recommended that school districts provide improved access to the internet and other e-learning platforms for their students and provide continuous professional development opportunities for their teachers to learn online teaching strategies and pedagogies (Yusuf, 2020). These recommendations are aligned with the question of equity and inclusion that are central to emergency online teaching.

Students’ socio-emotional learning becomes critical at a time of crisis when they are removed from their usual learning environment, friends, and teachers. Venet (2020) outlined how teachers can stay connected to their students to ensure their emotional well-being and learning progress. Evidence suggests that when students do not go to school regularly (for
example during breaks or holidays) they become less active physically, engage in longer screen time, and experience food issues and irregular sleeping patterns that could result in weight gain and loss of cardiorespiratory fitness (Wang et al., 2020).

While the physical issues discussed above are worrisome, students’ mental health can also be affected when they are at home during a pandemic. Stressors like fear of infection, lengthy home confinement, boredom and frustration, a lack of information about the current situation, lack of in-person contact with classmates and teachers, financial anxiety at home, and lack of personal space may have adverse effects on children and adolescents and may affect their mental health (Wang et al., 2020). Sprang and Silman (2003) stated that children who have been quarantined experience post-traumatic stress four times more than children who have not been quarantined. The authors also mentioned that although there are many common factors between pandemics and other disasters, such as community impact, fatalities, and long-lasting effects, the response to pandemics is unique because being with others is discouraged resulting in isolation (Sprang & Silman, 2003). Quarantine can be associated with insomnia, feelings of grief, frustration, confusion, anxiety, and anger that students and teachers alike may have felt during the pandemic situation and that may have affected their learning and teaching (Brooks et al., 2020).

The pandemic also acutely intensified issues of poverty and financial well-being. For many students, school-supplied meals are the main source of nutritious foods (Van Lancker & Parolin, 2020; Walters, 2020). Additionally, students in especially low-income families were at risk of receiving very little to no support for their learning at home while navigating new technology. This is exacerbated among rural or low-SES families where students may not get either the access or the support, they need to adopt to technology, either because their parents cannot afford technology (in case of low-SES families) or are not familiar with it (Ma, 2017). There is also the issue of bad quality internet or no internet access that may result in a “homework gap” where students are not able to complete assigned homework because of their internet problems (Consortium of School Networking, 2017) because most of the homework assigned is on a device and needs a device and internet connection to be completed. In addition, students may have had to deal with parents less motivated to support them, caring for their siblings at home, and sharing a device during the pandemic (Ross-Hain, 2020).

During the COVID-19 school closures, the quality of students’ learning depended on the quality of the remote instruction, home and parental support, and student engagement in learning (Dorn et al., 2020) and school closures intensified an already present achievement gap, with the U.S. ranking 18th out of 37 countries in high school graduation (Organization for Economic Co-operation and Development, 2020). The increased number of school dropouts among teens may have been the result of not being able to attend school physically, detaching them from the support they receive from empathetic adults such as school social workers, teachers, and counselors. The experiences of teachers were impacted by the perceived experiences of the students as they connected with video conferencing, email, phone calls, information exchange through distributed information and educational packages, and collaborative projects and assignments.

According to the literature on COVID-19 K-12 challenges, the most severe challenges were the psychological influence and economic and social inequities that were more pronounced during the pandemic. Several studies addressed the inequities that students suffered in accessing educational resources digitally or garnering parental and sometimes school support to progress academically (Chabbott & Sinclair, 2020; Dorn et al., 2020; Walters, 2020). The COVID-19
pandemic disrupted the educational system that had been in place for many years and the effects of this disruption are still to be understood and dealt with in all their facets.

**Teachers’ Responses and Experiences During the COVID-19 Pandemic**

In the early months of the pandemic, teachers began reporting their experiences of teaching online during the pandemic, such as physical exhaustion, lack of physical activity, feelings of panic, loss of student engagement in learning, concerns about students’ emotional and physical wellbeing, and feelings of vulnerability at not being able to meet the students face-to-face (Fagell, 2020; Gewertz, 2020a). Additionally, they also reported personal health and emotional concerns for self and family, their financial condition, and changes in daily living habits (Vu et al., 2020). Kaden (2020) reported in a case study about a small rural school in Alaska that there were several issues that came to the forefront during COVID-19, such as the teachers’ increased workload, the complexity and complications of online teaching due to different pedagogies and skills needed, difficulty adapting to new content to teach, assessing student learning, and struggling to engage students. Other authors reported that teacher workload was expanded by constant communication with students and parents (Cullnane & Montacute, 2020). They also reported a notable decline in students’ engagement and learning outcomes, plus an interesting correlation between school engagement and family income (Cullnane & Montacute, 2020). So, in addition to changes in their personal lives (e.g., demands of their own school-age children, possibility of job loss by other family members that could impact the total family earnings and living style, and concerns about meeting their family’s food and emotional needs), teachers also had to deal with changes in their professional lives by continuing to teach students who could not physically come to school. Teachers could not bank on their adaptive expertise to use their established lesson plans, educational resources, or long-practiced pedagogy to teach during the pandemic (Ross-Hain, 2020).

In a study by Trudel et al., (2021), teachers reported that they cared about their students and missed in-person interaction with their students. At the same time, they were worried about their home situation. They recognized the inequities that many students faced in access to online learning and tried to help those students, either with offline learning resources or by connecting them to the school district for help in getting internet access. While teaching online, teachers were vocal about the digital skills gap highlighted by the National Education Technology Plan (U.S. Department of Education, 2017).

The teacher participants also agreed that online learning heightened the need to engage students (Trudel et al., 2021). Teachers had to record video lesson and constantly, as the content demanded, switch between pre-prepared video lessons and hosting live teaching via Google Classroom™, Zoom™, Microsoft Teams™, and other such platforms. They needed to develop lesson plans as well as adapted worksheets, assessment sheets, and other materials way ahead of time that they usually did not have to do while teaching face-to-face (Kundu, 2020). However, this was all a steep challenge that they had not been prepared or trained for (Jain et al., 2021).

In a study by Amri et al., (2021), teachers felt stressed because, “Teachers felt burdened because there is not one method that can solve all the problems” (Amri et al., 2021, p. 4). Results from that study showed that teachers were not of the same opinion about school re-openings. Almost all the respondents (95%) agreed to continue conducting distance learning and/or using combined approaches between distance learning and in-class learning, and only around 5% of respondents agreed with coming back to full in-class learning (Amri et al., 2021).
When teachers were returning to face-to-face classes, teaching with face masks on and students also wearing face masks, many teachers noted that face masks have impaired the facial identification of students. Having met these students after a two-year-long hiatus, this proved to be a challenge for re-bonding with the students. Therefore, the social experience of teaching was also hindered because face masks blocked the emotional signaling between the students and the teachers. It also hindered communication, as teachers responded in a study by Spitzen (2020) that students had to take off their masks while speaking and that was against protocol. These teacher voices about everyday occurrences are critical to doing their work successfully on an everyday basis.

While returning to traditional face-to-face teaching, many teachers reported that they feared contracting COVID-19 from other colleagues or teachers (Weinert et al., 2021) but this did not hinder them from going to school to teach in the classrooms. In another empirical study (Wakui et al., 2021) the participant teachers expressed similar fears while returning to school.

Teaching and Learning During the COVID-19 Pandemic

Teaching online has come to the forefront of education strategizing due to the unforeseen challenges of navigating education during the COVID-19 pandemic. Most educational institutions across the globe mandated that all face-to-face classes be canceled, including labs, and decreed that faculty had to move their classes and instruction to an online format to continue learning for their students and therefore to help control the spread of the COVID-19 virus (Kronke, 2020). Moving instruction online can enable the flexibility of learning and teaching anywhere anytime, but in this situation the challenge was the speed with which faculties and teachers had to move to online instruction was unprecedented (Hodges, et. al., 2020). This is what Hodges et. al., (2020) has coined as the emergency remote teaching that left many teachers desperate and at the mercy of self-learning on YouTube™ and Khan Academy™ and other such online resources because campus and school support personnel for online learning was not able to provide support to a huge pool of teachers (Hodges, et. al., 2020). So we see that there is a clear distinction between teaching online and emergency remote teaching (Hodges, et. al., 2020).

Teaching Online

Zhao (2011) in their empirical work on online teaching stated that schools clearly must strategize to change their policies and practices if they wanted to adapt to online teaching and integrate technology to develop virtual technology competencies for their students. However, as noted by the National Education Policy Center, very little progress has been seen over the past few years for legislation, policy, and implementation of quality training for online teachers (Molnar et. al., 2017). Continual professional development must be offered to the teachers and several empirical studies have focused on this issue (Lewis & Garrett Dikkers, 2016; Parks et al., 2016; Riel et al., 2016). This is critical as this may aid the teachers in their online teaching pedagogies and technical skills. Many researchers have also argued the advantages of integrating online teaching pedagogies as a part of the pre-service teacher education curriculum (Archambault, 2014).

Without much formal or professional training on online teaching, teachers are often placed in online teaching roles, and it often falls on them to self-teach as mentioned above (Rice & Dawley, 2009). This manifests as a steep challenge for teachers among their other teaching and administrative roles. Therefore, school administrators must concede that online teaching requires specific skill sets and thus, adaptation to the relevant pedagogy (DeNisco, 2013).
Another interesting challenge that several teachers have talked about while teaching online, is a sense of alienation from their community as they are not physically meeting their colleagues as they would in a traditional school setting. Similarly, with students too they experience limited interaction (Hawkins et al., 2012).

As online teaching is evolving, many components of a traditional classroom, such as collaboration, have slowly found their way into the online space as well (Fu & Hwang, 2018). Interactions with the teacher and other students are crucial in motivating students to collaborate in digital environments (Cobb, 2009; Sung & Mayer, 2012) which of course teachers are trying to design and fit into their online spaces. Furthermore, teachers are trying to improve their own digital literacies as this may impact their students online learning too (Blau & Caspi, 2009; Porat et al., 2018). DiPietro (2010) noted that online learning has gained momentum because of a very important aspect of learning, being able to learn anytime, anywhere and other advantages such as living in a geographically remote place or belonging to a frequently moving family for reasons like agriculture, students who are differently abled and therefore not possible to access traditional settings (Deschaine, 2018).

One of the many challenges to online education is that underserved and marginalized students and communities find it difficult to meet the basic conditions for online learning, like access to a device or a stable internet connection (Ferri et al., 2020). Other challenges foreseen in online education is providing immediate feedback to students and covering content that requires practical or clinical work (Mukhtar et al., 2020). In response, the authors recommended that teachers develop lesson plans with reduced cognitive load and more interaction (Mukhtar et al., 2020) to prepare self-directed learners (Yusuf, 2020).

To implement online teaching effectively, Verawardina et al. (2020) suggested that instructors outline clear and actionable steps, learn about online teaching strategies and pedagogies, become familiar with current technology platforms, understand guidelines for teaching and learning (teachers and students, both), gain access to multimodal educational resources aligned with the curriculum, and implement a robust assessment system. Educators must view learning not just as a transfer of information but as a social and cognitive process and model their online teaching design to provide learning and interactions in conjunction with both processes (Hodges et al., 2020). Additionally, to improve students’ engagement in online learning, researchers have suggested that policymakers incentivize IT companies to design engaging and effective educational games and learning environments (Thomas & Rogers, 2020).

**Emergency remote teaching**

*Emergency remote teaching* is a temporary shift of instructional delivery mode to an alternate mode due to any crisis situation (Hodges, et. al., 2020). The COVID-19 pandemic began in the late months of 2019 and by Spring of 2020, in an effort to limit transmission of the virus, schools across the globe closed and transitioned to emergency online teaching (Jelińska & Paradowski, 2021). Online instruction can undoubtedly create more flexibility in a learning environment, but during the COVID-19 pandemic, the speed at which this transition was made was unprecedented. This represented a critical phase in which to consider technology, pedagogy, and education (Starkey et al., 2021). In a different scenario, if instruction was being moved online, teachers would receive school district or campus support to learn about how to implement online teaching. However, during COVID-19 these forms of support fell short because of the stringent timeline and the staggering number of teachers and faculty who were making this transition (Hodges, et. al., 2020).
The principal objective of online teaching in a pandemic situation is not to restore or renew an already robust educational system, but rather to ensure that students have continued access to educational resources and instruction (Hodges, et. al., 2020). If we understand emergence remote teaching in this manner, we can differentiate it from online teaching and learning. Otherwise, there can be undue comparisons between emergency remote teaching (under the same umbrella as online teaching) and face-to-face instruction. Also, since some researchers and scholars consider online learning as lower quality than face-to-face teaching, considering emergency remote teaching the same as online teaching could promote an appraisal of online teaching as inferior to face-to-face instruction. But any instructor or teacher making a shift to online teaching in critical pandemic-like circumstances cannot design their online teaching to take full advantage of the affordances of technology and the online format (Hodges, et. al., 2020). Therefore, the adoption of online learning during a pandemic situation represents a need for an uncharted format of teaching and learning that has motivated researchers, policymakers, and experts to scout for new solutions that may be hi-tech, low-tech, and no-tech (Ferri et al., 2020).

The pandemic-created emergency remote teaching can be an opportunity to evaluate the challenges to education that emerge during critical and emergency situations and develop a robust online education plan for future emergencies. In this context, policymakers and researchers need to pay close attention to understand how technology and learning can be integrated more competently and productively to address student needs and the role of teachers in this effort (Ferri et al., 2020).

Emergency remote teaching during the pandemic gave rise to different approaches based on the affordances of the technology used for the learning purpose (Ferri et al., 2020). Thomas and Rogers (2020) noted that school-supplied IT systems may frequently become outdated and costly, so they suggested students using personal devices that are integrated into the school system. Another option is to use television and radio for emergency remote teaching (though preparing for this may be challenging) for students who have no access or limited access to the internet (Eder, 2020). Television and radio were used in the past during the 2014 Ebola crisis (UNESCO, 2020) and countries like New Zealand adopted different modalities during the current COVID-19 crisis to continue education, including television channels integrated with internet delivery and hardcopy curricular resources to bridge the digital divide (Ferri et al., 2020). A similar approach was followed in Queensland (Australia) where limited internet availability required educators to utilize television connectivity so that students would get support for their home-based learning (Ferri et al., 2020). In Portugal, too, schools ensured that hardcopy learning resources were delivered through a partnership with post office services (Drane et al., 2020).

Instructional Strategies Used During the COVID-19 Pandemic

Educational leaders and policy makers have attempted to mandate and support students in developing twenty-first century technology skills that will prepare them for college and career opportunities (International Society for Technology in Education, 2014; NGSS Lead States, 2013). School districts decreed that teachers integrate technology in their curriculum and that required them to adapt to different instructional strategies (Blanchard et al., 2016). However, due to the pandemic institutions had to cancel all face-to-face classes, thus upsetting all well-laid out lesson plans for integrating technology in the curriculum (Kronke, 2020). From the elementary to the tertiary levels, educational institutions had to seek an alternative way to continue providing
education through an online mode via various digital learning platforms (Jandric, 2020a). This time frame of the COVID-19 pandemic therefore presented an opportunity to experiment with technology and pedagogy, and integrating new online educational resources in the curriculum (Starkey et al., 2021).

During the almost overnight switch to remote instruction resulting from the COVID-19 pandemic, teachers, in most cases, used trial and error methods to implement remote instruction (Jeong & So, 2020). Sometimes their online teaching strategies worked and sometimes they did not. Even students understood that this trial and error was necessary to come up with strategies that could be further developed into successful instructional strategies. To adapt to the instantaneous shift to online teaching, synchronous online conferencing systems like Zoom™ and Google Meet™ allowed students and teachers to join and participate in online classrooms (Lockee, 2021). Other platforms included Microsoft Teams™, Canvas™, and Blackboard™ (Petrie et al., 2020). These systems also allow teachers to record their instructional presentations for students to watch asynchronously (Lockee, 2021). These platforms also included the options for live chat, synchronous video meetings, and content repository to help with lesson organization (Pokhrel & Chhetri, 2021). These platforms support MS Word™, PDF™, MS Excel™, and various audio and video software and enable tracking student learning and assessment through quizzes and rubric-based assessments of assignments (Pokhrel & Chhetri, 2021). Teachers that taught subjects that required hands-on learning also designed experiential learning for their students through virtual labs and field trips (Pennisi, 2020).

Schools districts and other educational institutions created and offered a range of support and learning opportunities for teachers such as just-in time drop-in sessions, webinars, several blog posts, emergency policy documents to help teachers navigate any policy changes, social platform groups (Doucet et al., 2020). Teachers naturally had to adjust their instructional strategies so that students could also adjust to their new mode of online learning (National Academy of Sciences, 2020). For example, researchers found that during the emergency online teaching phase, when students experienced a lack of social interaction; teachers recognized this issue in their loss of engagement in learning, and prioritized student engagement by adjusting their instructional strategies and including more collaborative activities that could be conducted in an online space (Starkey et al., 2021).

Many researchers doing empirical work on learning during the COVID-19 pandemic have already discussed access to internet as one of the key challenges to learning during this time (Lockee, 2021). Schools and school districts attempted to mitigate these key challenges by coming up with innovative solutions, such as using school buses and school and library parking lots to provide mobile hotspots and improved signal strength, sending offline class packets by mail to student homes, and airing instructional presentations on local public broadcasting stations so students could watch their lessons on TV (Buffington, 2020; Lockee, 2021).

The educational landscape in both K-12 and higher education is changing at a very fast pace. Today, approximately 97% of teachers and students have access to computers during a typical school day, while others utilize smart boards, Apple and android tablets, and mobile wireless devices to assist in lesson preparation, assignments, communication with students and parent communities, and other classroom activities (Crowe et al., 2017; Gray et al., 2010; Kervin et al., 2013; Miranda & Russell, 2012).

One of the most important components that leads to meaningful uses of technology for educational purposes in classrooms is a well-trained teaching workforce that can meaningfully use the technology available to them (Arshad-Ayaz, 2011). While technology integration is
common in today’s classrooms, technology can also exacerbate pre-existing inequities, establish new ones, and further sideline and marginalize communities that are already being affected by the loss of technology in their loves (Kimmons, 2019; Rogers, 2016). To this end, COVID-19 drew increased attention to issues of digital equity as distance or online education, in many cases, became the sole means for continued learning and instruction (Young & Noonoo, 2020). As inequities re-surfaced in responses to this pandemic, pre-service teachers and in-service teachers had unique opportunities to reflect on their own digital privileges, analyze data relevant to the digital divide, and critically observe their local districts’ digital learning plans (Ferlazzo, 2020).

The COVID-19 stimulated innovations within the education sector (United Nations, 2020; Zhao & Watterston, 2021). Going forward it will be critical to understand the challenges that teachers faced while teaching during the pandemic in order to evaluate the instructional innovations made during this period. This will also help teachers sift between which instructional practices they thought were impactful and can be implemented in face-to-face classrooms and which were not. Table 1 presents some instructional strategies used in secondary schools during COVID-19 emergency online learning.

Table 1
Instructional Strategies from the Literature

<table>
<thead>
<tr>
<th>Instructional Strategy</th>
<th>Description</th>
<th>References</th>
</tr>
</thead>
<tbody>
<tr>
<td>Academic Language/Vocabulary</td>
<td>Using academic vocabulary is helpful for students to understand instructions better, comprehend content, be introduced to domain-specific words, and build on disciplinary core ideas.</td>
<td>National Academic of Sciences, 2020</td>
</tr>
<tr>
<td>Activating prior knowledge through leading questions</td>
<td>Teachers can help students activate prior knowledge and eliminate any superfluous or incorrect information by scaffolding student conversations and research by relating their experiences to learning concepts to form explanations.</td>
<td>National Academic of Sciences, 2020</td>
</tr>
<tr>
<td>Adapting to different learning styles</td>
<td>Though the concept of different learning styles is controversial, teachers prefer to present content so that students can learn, remember, analyze, and apply knowledge in different ways, such as visually, linguistically, spatially, and others.</td>
<td>National Academy of Sciences, 2020</td>
</tr>
<tr>
<td>Instructional Strategy</td>
<td>Description</td>
<td>References</td>
</tr>
<tr>
<td>------------------------</td>
<td>-------------</td>
<td>------------</td>
</tr>
<tr>
<td>Brainstorming ideas</td>
<td>For inquiry-based learning units, teachers design collaborative online activities to encourage brainstorming, develop investigation plans, discuss data interpretations, and discuss how the evidence supports the explanation of a phenomenon.</td>
<td>National Academy of Sciences, 2020</td>
</tr>
<tr>
<td>Clear statement of expectations</td>
<td>Teachers try to provide clear expectations of requirements so that students can plan their work without being overwhelmed.</td>
<td>National Academy of Sciences, 2020</td>
</tr>
<tr>
<td>Close read</td>
<td>Content is approached through systematic exploration to uncover layers of deeper meaning, understand a phenomenon, or solve a problem.</td>
<td>National Academy of Sciences, 2020</td>
</tr>
<tr>
<td>Culturally responsive instructions and assignments</td>
<td>Designing instruction with inclusive pedagogies in mind that is culturally responsive helps students to contextualize themselves and engage with their learning, which is critical in an online learning environment. Learning experiences become valuable and equitable when students can make a connection between their existing knowledge and the concepts they are learning in class.</td>
<td>National Academy of Sciences, 2020</td>
</tr>
<tr>
<td>Direct instruction</td>
<td>Structured and organized instructional approaches to content are presented by the teacher. This includes identifying learning goals, providing descriptions, illustrating learning points, modeling, and providing feedback.</td>
<td>Babinčáková &amp; Bernard, 2020; National Academy of Sciences, 2020; Ross-Hain, 2020</td>
</tr>
<tr>
<td>Discovery-/ Inquiry-based learning</td>
<td>Inquiry or discovery learning is a constructivist learning paradigm where students construct knowledge from the process of learning and their experiences. Inquiry-based learning units can use collaborative online activities to brainstorm, develop investigation plans, discuss data interpretations, and discuss how the evidence supports the explanation of a phenomenon.</td>
<td>National Academy of Sciences, 2020</td>
</tr>
<tr>
<td>Instructional Strategy</td>
<td>Description</td>
<td>References</td>
</tr>
<tr>
<td>----------------------------------------</td>
<td>-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
<td>-------------------------------------------------</td>
</tr>
<tr>
<td>Driving question</td>
<td>Teachers use cues and driving questions to help students recall prior knowledge, ready recall of what they have already learned, and eliminate inaccurate information.</td>
<td>National Academy of Sciences, 2020</td>
</tr>
<tr>
<td>Effective questioning</td>
<td>This instructional approach is a common classroom activity that allows teachers to focus on critical aspects of content and move to a higher level of questions in the online environment. Teachers often use this approach to create an engaging “hook” for introducing a new concept.</td>
<td>Ross-Hain, 2020</td>
</tr>
<tr>
<td>Evidence-based learning</td>
<td>This approach is used in inquiry learning to understand how evidence supports the explanation of a phenomenon</td>
<td>National Academy of Sciences, 2020</td>
</tr>
<tr>
<td>Experiential learning</td>
<td>Experiential learning is an instructional approach in which students learn from experience and by reflecting on their actions. During online teaching this was offered to students through virtual labs and field trips.</td>
<td>Pennisi, 2020</td>
</tr>
<tr>
<td>Exploring live, online, synchronous learning resources</td>
<td>This instructional approach allows teachers to build on core ideas, crosscutting concepts, and domain specific practices.</td>
<td>National Academy of Sciences, 2020</td>
</tr>
<tr>
<td>Exploring offline resources</td>
<td>This instructional approach allows teachers to build on core ideas, crosscutting concepts, and domain specific practices, keeping equity in mind, so that students can explore content at their own pace. The difference with using online resources is that teachers need to plan ahead and download these resources and have them ready in hard format that can be distributed to students who do not have online access.</td>
<td>National Academy of Sciences, 2020</td>
</tr>
<tr>
<td><strong>Instructional Strategy</strong></td>
<td><strong>Description</strong></td>
<td><strong>References</strong></td>
</tr>
<tr>
<td>---------------------------</td>
<td>-----------------</td>
<td>---------------</td>
</tr>
<tr>
<td>Field trips/Field experience</td>
<td>Experiences outside the bounds of classrooms are valuable for students to connect them with real sites and fields of learning. This instructional approach was used during online teaching to engage students by taking them on virtual field trips. This instructional approach is aligned with discovery learning, experiential learning, and inquiry-based learning and provided more opportunities for students to relate their learning to their own lives and make it more relevant to them at home.</td>
<td>National Academy of Sciences, 2020; Pennisi, 2020</td>
</tr>
<tr>
<td>Focusing on critical learning content</td>
<td>This instructional approach allows teachers to focus on critical aspects of content because time is of the essence in online learning.</td>
<td>Ross-Hain, 2020</td>
</tr>
<tr>
<td>Formative assessments</td>
<td>Teachers and students use formative assessment during instruction to provide actionable feedback to adjust the instruction, assignments, and ongoing teaching and learning strategies. Teachers during the very first weeks of moving to online learning constantly solicited student feedback on the assignments to know if students felt overwhelmed.</td>
<td>Ross-Hain, 2020</td>
</tr>
<tr>
<td>Hands-on learning</td>
<td>This instructional approach is aligned to experiential learning where students learn by doing. During the online teaching phase, teachers provided students with hands-on learning experience by creating videos of hands-on activities that aired on public television. So even though students could not conduct and experiment by themselves, they could watch how it is being done in the video. It is not the same as having a hands-on experience but the closest the teachers could get on giving students that kind of experience.</td>
<td>Buffington, 2020</td>
</tr>
<tr>
<td>Instructional Strategy</td>
<td>Description</td>
<td>References</td>
</tr>
<tr>
<td>--------------------------------</td>
<td>-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
<td>------------------------------------------------</td>
</tr>
<tr>
<td>Homework and practice</td>
<td>Traditionally teachers have used homework and practice to help students improve skills and master the content they are learning. Homework and practice were used by teachers during online learning by allotting time for asynchronous work to build on disciplinary core ideas.</td>
<td>National Academy of Sciences, 2020</td>
</tr>
<tr>
<td>Idea building</td>
<td>Students are encouraged by teachers to contribute to building ideas. The social connections that students form in school are not frivolous because students connecting to their peers and supportive adults creates a sense of belonging and students are potentially more likely to contribute to idea building in class, whether online or face-to-face. This instructional strategy can be used to build core disciplinary ideas or for online modeling to test ideas and other practices.</td>
<td>National Academy of Sciences, 2020</td>
</tr>
<tr>
<td>Identifying similarities and differences</td>
<td>This instructional strategy is used by teachers to compare and contrast two items that impel students to analyze content. This also helps students to shift their focus from <em>learning about</em> to <em>figuring out</em>.</td>
<td>National Academy of Sciences, 2020</td>
</tr>
<tr>
<td>Integration of content areas</td>
<td>Integrating content areas allows students to apply the skills they learn in one domain to another domain, like applying basic literacy skills to reading, writing, and math.</td>
<td>National Academy of Sciences, 2020</td>
</tr>
<tr>
<td>Journaling</td>
<td>Writing enhances learning in any subject. To that end, journaling is an instructional approach used to help students write about their reflections, visualize their designs, collect and write about data, and communicate their learning. It can be revised to align with students’ learning progress and test ideas.</td>
<td>National Academy of Sciences, 2020</td>
</tr>
<tr>
<td>Instructional Strategy</td>
<td>Description</td>
<td>References</td>
</tr>
<tr>
<td>------------------------------</td>
<td>-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
<td>-------------------------------------------------</td>
</tr>
<tr>
<td>Lecture</td>
<td>This is a traditional instructional approach that teachers use to present new concepts and critical content, summarize contrasting concepts or resources, and provide critical information to students. Lectures can be supported by providing extra learning resources, using examples and visuals, summarizing learning points, and checking for understanding.</td>
<td>Babinčáková &amp; Bernard, 2020; Ross-Hain, 2020</td>
</tr>
<tr>
<td>Modeling/Online modeling</td>
<td>Through this instructional strategy the teacher or another student can demonstrate a skill or a new concept that other students can learn about by observing. Online modeling tools like the Google Science Journal app can amplify students’ ability to visualize their designs, collect and write about data, and communicate their learning. It can be revised to align with students’ learning progress and test ideas.</td>
<td>National Academy of Sciences, 2020</td>
</tr>
<tr>
<td>One-to-one teaching/conferencing</td>
<td>One-to-one teaching is an instructional approach that allows teachers to pay individual attention to students to discuss their problems and help them with challenges unique to them. During the online teaching phase, schools decided to reduce synchronous online class time while allotting tasks for asynchronous learning and office hours so that students could seek one-to-one conferences with teachers.</td>
<td>Doucet et al., 2020</td>
</tr>
<tr>
<td>Online discussions/debate</td>
<td>Discussions or debates are a form of structured argumentation that impel students to engage in research, think critically, and develop listening and oratory skills. Teachers use this instructional approach for various academic pursuits, such as engaging in discussions on how the evidence supports the explanation of a phenomenon</td>
<td>National Academy of Sciences, 2020</td>
</tr>
<tr>
<td>Instructional Strategy</td>
<td>Description</td>
<td>References</td>
</tr>
<tr>
<td>------------------------</td>
<td>-------------</td>
<td>------------</td>
</tr>
<tr>
<td>Peer collaboration</td>
<td>Collaborative learning is built on the understanding that learning is a social construct. Peer collaboration involves students working in groups to discuss problems and find solutions. They do so by reviewing, organizing existing knowledge, filling the gaps in knowledge, and applying the knowledge to find a solution to a problem. For inquiry-based learning units, teachers design collaborative online activities to develop brainstorming, develop investigation plans, discuss data interpretations, and engage in discussions on how the evidence supports the explanation of a phenomenon.</td>
<td>National Academy of Sciences, 2020</td>
</tr>
<tr>
<td>Project-based learning</td>
<td>Project-based learning is an instructional approach that strives to address course content through relevant hands-on and rigorous learning. It allows students more choice in how a solution should look and students often build a project as a deliverable to demonstrate the outcome of the issue.</td>
<td>National Academy of Sciences, 2020</td>
</tr>
<tr>
<td>Puzzle solving</td>
<td>This is a cooperative learning instructional strategy that enables students to work in groups to put together different aspects of a topic. Teachers use this approach to shift focus from students learning about to figuring out to explain a puzzling phenomenon or solve a problem.</td>
<td>National Academy of Sciences, 2020</td>
</tr>
<tr>
<td>Reading and writing across the curriculum</td>
<td>In this instructional approach, basic literacy skills like reading and writing are integrated in other subject areas, as well. This develops students’ understanding across curricular domains by building disciplinary core ideas and crosscutting concepts.</td>
<td>National Academy of Sciences, 2020</td>
</tr>
<tr>
<td>Rubrics for assignments</td>
<td>Using rubrics is an instructional strategy that supports students in the self-assessment of their progress and performance. Rubrics can include instructions and details of when and how students are expected to participate, what satisfactory participation looks like, and criteria for assignments.</td>
<td>National Academy of Sciences, 2020</td>
</tr>
<tr>
<td>Instructional Strategy</td>
<td>Description</td>
<td>References</td>
</tr>
<tr>
<td>----------------------------------------</td>
<td>-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
<td>-----------------------------</td>
</tr>
<tr>
<td>Scaffolding student conversations</td>
<td>Though the goal of student learning is to help them develop useable knowledge, it must be done by scaffolding student conversations and research by relating their experiences to learning concepts to form explanations.</td>
<td>National Academy of Sciences, 2020</td>
</tr>
<tr>
<td>Specific feedback</td>
<td>Feedback is an instructional strategy that allows teachers to align learning outcomes with learning objectives and improve student achievement. Teachers during the very first weeks of moving to online learning constantly solicited student feedback on the assignments to know if students felt overwhelmed.</td>
<td>Ross-Hain, 2020</td>
</tr>
<tr>
<td>Structured instructions</td>
<td>This instructional approach is used to supply students with intentional and well-designed instructions to help them contextualize themselves and engage with their learning which is critical in an online learning environment. Learning experiences become valuable and equitable when students can make a connection between their existing knowledge and the concepts they are learning in class. To foster student agency during the pandemic, teachers developed clear instructions on how to set goals, monitor progress, and accomplish those goals.</td>
<td>National Academy of Sciences, 2020</td>
</tr>
<tr>
<td>Student goal setting</td>
<td>Teachers used this instructional strategy to foster student agency during the pandemic by providing clear instructions on how to set goals, monitor progress, and accomplish those goals.</td>
<td>National Academy of Sciences, 2020</td>
</tr>
<tr>
<td>Teaching through public television networks</td>
<td>This instructional strategy is tool based and is used in crisis situations when other networks of distributing knowledge are not available. Teachers can create videos of hands-on activities that to be aired on public television to mitigate the issues of access to quality broadband.</td>
<td>Buffington, 2020</td>
</tr>
</tbody>
</table>
Pedagogy for Continuing Online Instruction

The COVID-19 pandemic paved the way for introducing digital learning on a mass scale (Dhawan, 2020). Researchers highlighted that teaching online during the pandemic (i.e., emergency remote teaching) had certain shortcomings such as teachers’ limited exposure to prior online teaching, an information gap about online teaching and learning, a lack of physical spaces and support for students learning from home, and the digital divide and students’ lack of access to devices and/or stable internet connections. However, instead of flatly condemning emergency remote teaching, there is a need to evaluate how COVID-19 impacted teaching and learning and the challenges and opportunities it created.

E-learning tools and online learning platforms have played a critical role during the pandemic in continuing to provide educational resources and instruction to students (Subedi et al., 2020). Adapting to unfamiliar circumstances, student and instructor readiness needs to be assessed accordingly (Pokhrel & Chhetri, 2020). Learners with access and a growth mindset adapted to the new online learning format whereas students with access issues and fixed mindset found it difficult to adapt (Pokhrel & Chhetri, 2020). Further, there were different pedagogies for online learning that needed to be applied for students of different ages and to teach different subjects (Doucet et al., 2020). How an online educator applies online learning pedagogies depends on their expertise and exposure of the instructor to best practices for online learning (Pokhrel & Chhetri, 2020).

Many educators used the flipped classroom strategy for providing resources like articles, pre-recorded videos, and YouTube links for students’ personal study time so that the online classroom time is used more productively to explore the content (Doucet et al., 2020). This pedagogy can encourage critical learning skills like problem-solving, self-directed learning, and critical thinking among students (Doucet et al., 2020).

Contribution of Parental Community in Student Learning During the COVID-19 Pandemic

In the spring of 2020, when the entire global education system moved to distance learning, parents became key learning agents of their children with the support of teachers,
helping these students to understand how to continue learning using a new online mode of learning, how to use digital solutions, and how to support students in this process. For many parents this modality was as new to them as it was to their students. In just a few days, the learning process had to be transformed into remote education and many parents did not have the infrastructural requirements for their students to learn online. The concept of homeschooling, from its prior focus as a way to provide education at home to small groups of people, suddenly became a popular method of continuing instruction and parents had a viable part in it to ensure the success of their students. “Although parents and teachers have distinct roles in students’ education, they have overlapping influences on student engagement” (Borup et al., 2014, p. 128).

Thus, this opportunity to learn online also depended on the social situation of families, such as whether the children could be provided with digital devices and support to access learning content or had the opportunity to set up their own learning space, or if their parents had the digital expertise to help students navigate their online learning, for example. Additionally, there was the issue of whether parents had resources to monitoring their students’ learning process, because some parents’ work was related to the provision of important functions, such as medicine, emergency services, and the supply of goods. Single parents, or parents who became ill with COVID-19 themselves, also could not be fully involved in the children’s homeschooling support and process. Studies have already shown that families with higher incomes and higher levels of parental education were better able to cope with this crisis and were satisfied with the benefits of distance learning. Dong et al., (2020) stated that parental support was more crucial during the younger and formative years of the children during homeschooling. There were risks and dangers associated with digital literacies while leaving young children alone at home while parents had to go to work (Dong et al., 2020).

Ravichandran et al. (2020) drew attention to the apparent rise in children’s home abuse and neglect during the homeschooling years. Also, parents’ beliefs and attitudes about early digital and online learning have been polarized in the past decade, with some parents’ opinions that it is the teachers’ responsibility, while not understanding the constraint that the teacher is not present at home (Ravichandran et al., 2020).

Therefore school-community partnerships have been a healthy alternative for providing accountability for students' learning as well as their emotional well-being (Casto, 2016). The National Commission on Children and Disasters (2010) has put more stress on child well-being than completing a curriculum.

**METHODOLOGY**

The purpose of this research study was to discover how secondary teachers (middle and high school) experienced teaching online during the COVID-19 pandemic. I was also interested in examining how they adjusted their pedagogical and instructional practices for teaching online during the pandemic. I would like to note here that I was also interested in learning about my participants’ perspectives on the pedagogical and instructional practices they used during COVID-19 pandemic that they reported incorporating in the following year when classes returned to face-to-face mode.

This was a basic qualitative study (Merriam, 2002). This type of study allows a researcher to explore how participants make meaning of a particular situation or phenomenon, which in this study was teaching during the COVID-19 pandemic. The interpretation of this meaning by the researcher was inductive and the outcome descriptive. Data collection was done through interviews (McClelland, 1973). By conducting a basic qualitative study, I hope to
uncover and understand what it was like teaching during a pandemic, and the achievements and concerns of the participants (secondary K-12 teachers).

Specifically, the following research question was addressed in this current study (Kim & Bagaka, 2005):

- **RQ 1:** What were secondary teachers’ perspectives on the impact of emergency remote teaching on their students as they returned back to face-to-face classes?

I begin this chapter by grounding my thinking in qualitative methodologies and discuss how these methodologies played a role in this research using critical events approaches (Butterfield et al., 2009) while collecting data, selecting research participants, and selecting research sites. I employed behavioral event interviews (Fernandez, 2006) for data collection and critical event analysis (Webster & Mertova, 2007) for data analysis.

Because I used the critical events approaches (Butterfield et al., 2009), it is important to understand what can be defined as critical events. Webster and Mertova (2007) stated that an event becomes critical when it has the “right mix of ingredients at the right time and in the right context” as cited in Webster & Mertova, 2007, p. 102). In the context of this study the COVID-19 pandemic was the critical event. An event turns critical when it exhibits a few of the following characteristics. It must have had an impact on the performance of the narrator (research participants) in their professional role. It may have some traumatic characteristics, such as excessive interest shown by the media or the public in general, or personal risk, for example, illness or other consequences. The most critical part of being a critical event is the impact it has had on the narrator, the research participants.

When the COVID-19 pandemic began during the first months of 2020, teachers became “first responders” as they decided how to continue their students’ education in the face of school closures. Amri et al. (2021) found that teachers agreed that though they had to go online, there could not be a “one solution fits all” approach (p. 4). Teachers felt anxious because they did not know how long this predicament would last and were concerned about students’ safety, education, and home situation (Wakui et al., 2021). These undercurrents of emotions and feelings of teachers often got lost in understanding the bigger phenomenon of the COVID-19 pandemic. Therefore, the goal of this study was to gain access to and amplify teachers’ experiences and voices about teaching, professional support, their students, and how their own lives were impacted by the pandemic. The remainder of this chapter will discuss the participants, research site(s), context, gaining access, consent form and ethics, data collection procedures, data transformation and representation, and data analysis.

**Participants**

**Purposive Sampling**

Purposive sampling is sometimes referred to as nonrandom sampling (Fraenkel et al., 2015) because in nonrandom sampling the researcher consciously chooses some criteria that the sample must represent. Purposive sampling is used widely in qualitative research where there might be limited resources, to identify and select information-rich cases for the most effective capturing of relevant information (Patton, 2002). Using this sampling strategy allowed me to identify and select research participants who were experts in the knowledge that I required for my study and very experienced in my phenomenon of interest (Creswell & Plano Clark, 2011). In addition, these participants were available and willing to participate in my research study (Bernard, 2002; Spradley, 1979).
Purposive sampling is distinct from convenience sampling in that researchers do not study the subjects who are available, but those who they feel may be able to provide the information they need. One limitation of this form of sampling is that if the researcher is mistaken in their judgment of the participants’ knowledge about the research topic, they might not be able to gather the required information. The next section delineates how I selected participants through purposive sampling for this study.

**Participant Selection**

The research participants in this study were recruited through their work email accounts and through a call for participation in social media. The participants were identified through three avenues: lists of school districts and schools (that contained some school principal and school teachers information as well) that was provided by a midwestern research university office which actively working with K-12 schools and an organization working with K-12 schools in another midwestern research university, and through a call for research participation in various social media on their K-12 school pages.

Upon receiving International Review Board (IRB) approval for this study, an email invitation was sent to the secondary school principals (Appendix A) and teachers (Appendix B) whose contact information was available in the lists received from the university office and the K-12 related organization. Simultaneously, a call for research participation was put out on social media platforms such as Facebook and Twitter (Appendix C). The participants were secondary teachers (grades 5-12) (as decided by the particular school district) in K-12 schools. I did not use a criterion based on the average number of years of teaching experience so that I could capture the perspectives of both new and experienced teachers. The only criteria for selection of participants were that they taught in secondary grades, they taught online during the COVID-19 pandemic, and they had returned to face-to-face teaching.

A total of 534 emails were sent to school principals (Appendix A) and teachers (Appendix B) out of which I was able to recruit three participants. From the references of two of these contacts I was able to snowball three other participants. However, before the interviews, three of these participants contracted the very disease that this study is about. Therefore, I decided to go forward without those participants. From the posts on social media (Appendix C) one teacher responded and I was able to recruit them and snowball one more participant through their reference. In total I was able to recruit and interview five teacher participants. Fortunately, there was a good amount of data convergence with some divergences in the data that I collected from these participants.

My teacher participants taught a variety of content areas. Specifically, the participants consisted of two science and technology teachers, one financial education teacher, one bilingual teacher, and one language (English reading) and math interventionist teacher. All participants met the three criteria of teaching in secondary grades, teaching online during the COVID-19 pandemic, and had returned to face-to-face teaching.

**Participating Teachers and Institutions**

My interview protocol (Appendix D) explicitly mentioned that I would maintain complete privacy of information about my research participants and the schools they represented. Therefore, I described my participants and their schools in the following manner:
Table 2

Pre-determined Criteria for Selecting Research Participants/ Matching predetermined criteria with participants

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Part. 1 - JS</th>
<th>Part. 2 - CS</th>
<th>Part. 3 - VS</th>
<th>Part. 4 - SD</th>
<th>Part. 5 - JR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Secondary K-12 Teacher in the USA</td>
<td>High School</td>
<td>High School</td>
<td>Middle School</td>
<td>High School</td>
<td>Middle School</td>
</tr>
<tr>
<td>Has taught online during the Covid-19 Pandemic</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Returning to face-to-face teaching currently</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
</tbody>
</table>

454
### Table 3
Context of the Study

#### Teacher Participant Demographics

<table>
<thead>
<tr>
<th>Teacher</th>
<th>Educational background</th>
<th>Teacher training/License</th>
<th>Years teaching/ Years teaching secondary level</th>
<th>Years using tech for teaching</th>
<th>Current subject/ Grade level</th>
<th>Technology available in classroom?</th>
</tr>
</thead>
<tbody>
<tr>
<td>JS</td>
<td>Master’s in Education</td>
<td>Yes/National Board Certification</td>
<td>22/22</td>
<td>20</td>
<td>CS and Visual Communications/ High school</td>
<td>Yes. 1:1</td>
</tr>
<tr>
<td>CS</td>
<td>Interdisciplinary Master’s</td>
<td>Yes/Social Studies</td>
<td>37/32</td>
<td>32</td>
<td>Business/Finance and Traffic Safety/ High school</td>
<td>Yes. 1:1</td>
</tr>
<tr>
<td>VS</td>
<td>Master’s in Classical Studies; Pursuing PhD</td>
<td>Yes/ Multiple subjects</td>
<td>14/1</td>
<td>14</td>
<td>English and Math Interventionist/ Middle school</td>
<td>Yes. 1:1 (Tablets are 1:2)</td>
</tr>
<tr>
<td>SD</td>
<td>Bachelor’s in Engineering</td>
<td>No</td>
<td>7/7</td>
<td>7</td>
<td>Science and Math/ High school</td>
<td>No</td>
</tr>
<tr>
<td>JR</td>
<td>Bachelor’s in Computer Engineering/ Master’s in Educational Leadership</td>
<td>Yes/ Science and Spanish</td>
<td>14/9</td>
<td>14</td>
<td>Science and Spanish (Bilingual)/ Middle school</td>
<td>Yes. 1:1 (Tablets are 1:2)</td>
</tr>
</tbody>
</table>

#### Research Sites

This study was situated in intangible research sites. Interviews with research participants were conducted via the Zoom™ video conferencing platform (Zoom Video Communications, 2020). The interviews were conducted online due to the limitations of the pandemic situation when travel was not recommended. They were also done virtually to avoid overwhelming the participants who were returning to face-to-face classes after over a year, and who may not have the classroom ready for researchers and external observations. Also, schools might still have had restrictions about outside visitors, so the schools asked me to conduct the interviews via Zoom™.
**Research Context**

The schools that these participants came from were situated in cities (as described in the school district website). These schools were all 1:1 (i.e., they had at least one device for each student). (One-to-one, 2013). Additionally, students also shared some devices. Schools and school districts attempted to provide internet access and individual devices to those student and families who did not have it or could not afford it. Table 4 provides additional information on the five schools.

**Table 4**

*Research (Participant Teachers’ School) Context – Schools were 1:1 before the Pandemic*

<table>
<thead>
<tr>
<th>School # and Location</th>
<th>School Technology Resources</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Northwestern U.S. state</td>
<td>The school is 1:1 with laptops in all classrooms. Students take classes on the Edgenuity platform, and the school provides Google accounts. For remote learning, laptops are given to students with no access to a device at home and the school district also assists with internet connectivity. For high school students, school supplies are covered, course fees are pardoned, and there are reduced fees for PSAT, AP classes, and athletic activities. Among 1200 students, 5% are eligible for free or reduced lunch. School technology questions are usually directed to the teacher.</td>
</tr>
<tr>
<td>2. Northwestern U.S. state</td>
<td>The school is 1:1 with laptops in all classrooms. Students take classes on the Microsoft Teams and Clever platforms and the school provides Google accounts. The school uses Skyward for parent communication and student records. Among 1255 students, about 36% are eligible for free or reduced lunch. School technology questions are usually directed to the teacher.</td>
</tr>
<tr>
<td>3. Midwestern U.S. state</td>
<td>The school is 1:1 with Chromebooks in all classrooms for some part of each day. The school offers internet access to students and staff, and students use Google Classrooms for online learning. The school provides student Google accounts, Zoom, Renaissance for accelerated reading, Aleks for math and science, and Harmony for parent communications and student records. The school also uses Scrip Fundraising (<a href="https://www.raiseright.com/#:~:text=What%20is%20gift%20card%20fundraising%20even%20your%20family%27s%20summer%20vacation">https://www.raiseright.com/#:~:text=What%20is%20gift%20card%20fundraising%20even%20your%20family%27s%20summer%20vacation</a>) as an easy way to raise funds for the school while purchasing everyday items like food, clothing, and other school essentials, without any added expense. All students are eligible to receive free lunch. The school has technical personnel who come in a few days every week to aid the teachers or the administration in solving technical issues.</td>
</tr>
</tbody>
</table>
4. Midwestern U.S. state

The school is 1:1 with laptops and all teachers have a laptop, projector, and access to numerous software programs and web 2.0 tools. Students use ECHO, a learning management system (similar to BlackBoard™) and Naviance™ by Powerschool™ is used for parent communications and student records. Among 653 students, 86.2% are eligible for free or reduced lunch. The school has a full time IT aide to assist teachers with technology in the building, along with an instructional technology coach.

5. Midwestern U.S. state

The school is 1:1 with laptops but students share tablets. During the pandemic, the school attempted to provide each student with a laptop to take home for remote learning and the school also supported the students and staff who needed internet access at home. The school uses programs such as Tyler SISTM, Google Suite™, SeeSaw™, and Wonders ELA/ Maravillas™. Among 365 students, 97% are eligible for free lunch and 2% for reduced lunch. The school does not have dedicated technical personnel but has access to the district technology help desk.

Consent Form and Ethics

Though I did not have a separate consent form for participants, I shared all of the recruitment materials with them: the email invitations that were sent to all the secondary school principals (Appendix A) and teachers (Appendix B) and the call for research participants that was put on social media platforms like Facebook and Twitter (Appendix C). Once recruited, I also shared my interview protocol (Appendix D) and recruitment flier (Appendix E) with them along with the IRB approval letter (Appendix F) and Indiana University Study Information Sheet for Research (Appendix G). Ethically, I had completed all the needed procedures to be able to begin data collection. There was no conflict of interest with any participant.

Data Collection

Behavioral Event Interviews

To answer the research question, I collected data through multiple sources such as interviews. With each participant, I conducted a one-to-two-hour behavioral event interview (BEI) (McClelland, 1973). BEI was adapted from the critical incident interview developed by Flanagan (1954). This manner of interview approach is usually used in business scenarios for interviews of job applicants for competency mapping. BEI was designed to demonstrate effectiveness based on the actual experience of the participants (Fernandez, 2006). The objective of a BEI is to elicit a detailed behavioral description of how a person conducts their work. In the context of this study, BEI interviewing provided an opportunity to explore in detail some of the following considerations: how the participants experienced teaching during the COVID-19 pandemic, what their highest and lowest points in those experiences were, and the teaching practices they continued to use (or not) when they returned to face-to-face teaching? Overall, the covered how K-12 secondary teachers experienced COVID-19 emotionally, procedurally, logistically, and strategically; what intentionality or innovations they used in their teaching; and what they actually experienced.

A major step in a BEI is to elicit behavioral events. The interviewee is asked to describe, in detail, five or six critical situations that they have experienced during a specific job or situation. The situations should include two or three high points, or major successes, and two or
three low points, or key failures. These focused, recorded interviews can take up to two hours (BEI Toolkit, n.d.). To prepare for a BEI, the researcher follows a list of steps (Fernandez, 2006). Following is a description of the steps and how I have followed them, including where and why I deviated from the recommendations.

1) List the critical performance areas for the job: In the context of this study, this translated to teaching online and how teachers transitioned back to face-to-face teaching.

2) Create open-ended questions that can inform about the candidate’s experience at those tasks: This delineated the online teaching experiences of teachers and their experience of transitioning back to face-to-face teaching. In this step I created open-ended questions to ascertain my participants’ actual behavior and actions in relevant situations. An example was, “Can you describe your feelings and emotions when you heard the news of COVID-19 and subsequently the announcements about the closure of all schools?”

3) Gather data about STAR -Situation, Task, Action, and Result through the candidate’s answer: This involved collecting data through interviews about their previous and current situation, the kind of work they were doing (teaching online), what actions they had taken to do so successfully, and what the outcomes were in terms of student attendance, engagement, and learning outcomes. In this stage I listened closely to the participants during their interviews, took copious and detailed notes to record what they were describing, and audio-taped the interviews (with permission) for transcription purposes. These notes helped me to quickly scan the participants’ answers to see if something was missing and probe them gently to collect the missing information or get more in-depth answers. For the example of the question I cited in the last stage, probing questions could include, “What did you want to do in this situation?” or “Describe how you felt about learning new technologies?” This helped uncover more details and specificity in the participants’ answers rather than only general comments like, “Usually I…”

4) Evaluate the answers for demonstrated job performance: In this stage I did not evaluate the participant teachers’ job performance because that was outside the scope of this study, and I did not see myself in an expert role that qualified me to do so. This study was about uncovering teachers’ voices and listening to their experiences, victories, and concerns.

5) Compare their answers to other candidates’ answers (this is sometimes done with a point system): In the following chapter I have compared the teachers’ responses to create a rich database of these experiences but did not use a point system because my intention was not to hierarchically rank the participants but simply to amplify their voices.

Designing Research Instruments
In this section I delineate the process of designing the interview protocol and the interview questions. While designing my research instrument, I was aware of the guiding directions for the BEI and was mindful of these when constructing interview questions.

Constructing the Interview Questions
Though the steps stated in the BEI were meant for job interview situations, what I followed most closely was creating a list of open-ended questions to explore in depth a participants’ teaching experiences during the pandemic. Cohen and Manion (1988) stated that interview questions should be unambiguous and uniformly workable, meaning that they should minimize errors on the part of both the interviewer and interviewees. It is difficult to capture interviewees’ personal beliefs, so as a researcher I had to rely on the honesty and accuracy of my
participants’ responses. Therefore, it was important that my interview questions were as clear and lucid as possible so as to not confuse the participants.

**Interview Questions**

The interview questions consisted of four sections. The first section collected information on the participants, names, their school, the name of the interviewer, and any interview comments. The second section was to be read out to the participants before the interview began and was part of the interview protocol (Appendix D) that stated the purpose of the interview, permission for the interview to be audio-taped for transcription purposes, and how the interview transcript would be shared with the participant for member checking.

The third section consisted of the interview questions. The participant number, date, and time of the interview were also noted. Interview items included the following:

- As a way of getting started, perhaps you could tell me a little bit about your work situation.
  - Can you describe your feelings and emotions when you heard the news of COVID-19 and subsequently the announcements about the closure of all schools?
  - What did you want to do in this situation?

- How did you experience teaching during the COVID-19 pandemic? Describe how you felt learning new technologies,

- After the initial reactions or feelings, if you had some time to think and plan, what were your plans (if any) for delivering education to your students?

- What actions or strategies did you decide to employ or had already employed?
  - What were you thinking, what were you feeling, what were you saying, what were you doing?
  - Can you think back to the time when you were redesigning/ reorganizing your learning resources and activities? Why did you make certain decisions of changing things or keeping them the same?
  - What circumstances did you consider?
  - What was the outcome? What happened?
  - What were you thinking about your students during this time? What did you actually do or say to them?

- Tell me about one or a few of the teaching strategies that worked very well for you and your students.
  - Walk me through how you came up with this strategy? Why do you think it worked out so well?
  - Can you please share your screen and show me what you did?

- Tell me about one or a few of the teaching strategies that were a total wreck.
  - What did you do to rectify the situation?

- How are the proposed strategies working so far, and what opportunities or challenges have you experienced?

- You volunteered to participate in this study because you identified yourself as a secondary teacher who experienced teaching online during the COVID-19 pandemic and now you are returning to face-to-face classes.

- What does “doing well” mean to you? What are the changes that have affected your work life?
- How have these changes affected your work life? (Probe, as needed: Are there any other impacts on your work?)
- How do you rate yourself on scale of 10, 10 being the highest?

The fourth and final section was the critical incident component of the interview questions. I asked follow-up questions on their wellness and well-being and the critical components of their experiences. These interview questions included:

- Helpful Factors and What They Mean to Participant
  You said that even with all these changes, you rated yourself as a [#] (whatever the participant rated him or herself above).
  - What has helped you in doing well with the changes that have affected your work? Probes: What was the incident/factor? How did it impact you? (For example, “Persistence is helping.” “How is it helping? Can you give me a specific example where persistence helped? How did that help you to do well in handling the changes affecting your work?)

- Hindering Factors and What They Mean to Participant
  - Are there things that have made it more difficult for you to do well? (Alternative question: What kinds of things have happened that made it harder for you to do well?)

- Wish List Items and What They Mean to Participant
  Summarize what has been discussed up to this point with the participant as a transition to the next question.
  - We’ve talked about what’s helped you to do well (name them), and some things that have made it more difficult for you to do well (name them). Are there other things that would help you to continue doing well? (Alternative question: I wonder what else might be helpful to you that you haven’t had access to?) Have you always handled change well? If not, when did this change for you?

Finally, I asked some demographic questions about their education, years of experience, and the grades and subjects they were teaching.

**Data Transformation and Representation**

Transforming qualitative data involves management, organization, interpretation, description, and analysis of data, in addition to documentation of the process used to transform the data into evidence that provides insight and answers to the research question (Lincoln, 2002; Wolcott, 1994). It is important to consider that this process may be iterative without any clear beginning or end. I was aware that the voices of the teacher participants about their experience of teaching during the COVID-19 pandemic could not be captured in their entirety. There would be layers of subjectivity which may disallow me to understand or interpret their perspectives completely. Regardless, I aimed to remain as close as possible to the data to allay the tension between data and the transparency it presented about the circumstances. My aim was to retain the data as the driving factor in analyzing the findings while using theoretical arguments to support the data. I did not want to limit the data with theoretical foundations. In this section I describe the process I followed for data management, coding, and representation.
Coding

After completing member checking, I organized my data as snippets of answers for each interview question. These snippets were kept on Google Sheets with several sheets for each question.

First Cycle Coding

On each sheet for a particular question, I performed a first cycle of coding using descriptive coding (Saldana, 2013). Descriptive coding summarizes, usually in short phrases, the basic topic in an excerpt of qualitative data. These codes are identifications of different topics and not used merely to abbreviate the data. After this initial first cycle of coding, 1,556 first codes emerged (729 for JS, 447 for CS, 164 for VS, 118 for SD, and 100 for JR). There were a huge number of codes because I coded everything that could be a code rather than leave a new meaning out.

I used descriptive coding at this beginning stage to identify the different topics that could potentially coalesce into themes. Descriptive coding led me to form a tabular account of the data’s content that I have displayed below as an example (Saldana, 2013). This was essential groundwork for the second cycle of coding that needed further interpretation and analysis (Wolcott, 1994, p. 55). Table 5 illustrates an example of these coding cycles.

Table 5
Example of Coding Cycles Using Descriptive Coding (Saldana, 2013)

<table>
<thead>
<tr>
<th>Transcript</th>
<th>1st Cycle of Coding</th>
</tr>
</thead>
<tbody>
<tr>
<td>VS - Yeah, so we we started, we did asynchronous from the beginning of the the totally online. So in the fall of 2020, it was synchronous classes in the morning, asynchronous in the afternoon. And at first it worked a little bit, you know, homework and checking in. So we just have a Zoom Room where if you didn't understand the homework, or you wanted to do a group project together, or something like that, and it didn't take, I don't know, maybe two months before, there was nobody in the afternoons and then talking to other teachers, it's like, we can't expect them to do any anything in that in the afternoon.</td>
<td>Asynchronous not working well</td>
</tr>
<tr>
<td>VS - The problem the problem that I had was getting our cameras on. I knew I as a teacher needed to see their faces because I couldn't gauge that personal connection. I missed that so much being online. That was the the biggest the hardest part for me. So if I couldn't see their faces, I didn't know what they were thinking, what they're not what they're thinking, but I couldn't see. Were they thinking about the problem were they distracted or were they doing something else? And because I couldn't see their faces. I couldn't judge what what they were doing. So I couldn't read their body language. So for me, that was the biggest part. I had the hardest time with that even to even to this day. I think if we haven't I still have a hard time with some students putting their cameras on.</td>
<td>Access was an issue in how teaching online continued</td>
</tr>
</tbody>
</table>
After 1st Cycle Descriptive Codes (Themes)

| Everyone described their emotions of what strategies were working | Teaching strategies that were a total wreck |

2nd Cycle of Coding

| Most emotions were driven by panic of the unknown | Teaching strategies could be both ways – successful and unsuccessful |

After 2nd Cycle of Pattern Coding (Categories) - Themes

| Initial Panic and Chaos | Wins and losses |

After the first cycle of descriptive coding, I categorized the codes based on the relationships among them and the underlying meaning across the codes. I did not look at the coding frequencies because that was outside the scope of this study.

**Second Cycle Coding**

In the second cycle of coding (Saladana, 2013), I reorganized and reanalyzed the first set of coded data. The primary goal was to develop a sense of thematic or conceptual organization of the first cycle of codes. After the first cycle of codes, I used pattern coding (Miles & Huberman, 1994). Pattern codes are explanatory in nature and help infer or identify an emergent theme. They pull together many first codes to form a parsimonious unit of analysis (Saladana, 2013). This method aligned well with the exploratory and ontological nature of my research question and helped me to draw up a pattern that could narrate the experiences of the secondary teachers. Pattern codes include a word indicating the inferred pattern or theme. After the first cycle of coding, 174 second cycle codes emerged (20 for JS, 15 for CS, 65 for VS, 40 for SD, and 34 for JR) that I could use for the second cycle of coding. I again used pattern coding (Miles & Huberman, 1994) to help identify the various themes and patterns that emerged from the data and formed relationships among them. These themes were grouped under similar categories based on the relationships among them and underlying meaning across the codes. After this second cycle of pattern coding, I examined the initial codes; identified trends, patterns and relationships; and finally assigned labels that I will call categories from hereon. Examples of the resulting categories can be seen in Table 5.

**Data Representation**

In representing the data, I attempted to remain close to the data despite some tension between teachers’ voices and transparency. While I take complete responsibility for the decisions I made about data collection, management, interpretation, and analysis from theoretical influences, I wanted the data to be the driving factor, with theoretical arguments supporting the data.

Critical events analysis (Webster & Mertova, 2007) was the primary data analysis approach. The chronology of the events, rather than codes, were used to represent the findings and later lead the discussion. For example, the code “loss of connections to students” functioned
differently in the different chronology of events and held different meanings that were negotiated differently by participants across different circumstances. Each of those negotiations or meanings that emerged from the transcripts, interacted in a complex manner with other aspects of the participants’ experiences, legitimizing their feelings and experiences, however chaotic they may have been. Thus, to understand such blended aspects of analysis and reproductions of experiences and feelings of the participants, I needed additional ways of capturing the multiplicity of interactions between time, space, circumstances, events, negotiations, and contradictions, leaving some room for deferring immediate meaning making and limiting singular explanations.

I listened very closely to the conversation tapes multiple times and went over my notes in detail to obtain a sense of more than the textual representation of data, to remind me that some of those tacit data sources (like the lesson plans) also impacted, solidified, and shaped my understanding of the data. My initial analytic focus was loosely structured to explore how the participants negotiated their experiences, and to examine the contexts in which those experiences were produced. This focus allowed me to stay close to the data and unwrap more avenues of interpretation through writing about my analysis of the data. I reviewed the entire data set several times and began writing when a new topic emerged. This process helped me link several written accounts or analyses. These pieces did not exist independently but were connected to each other and created a network of shared experiences and feelings among the teacher participants.

I asked myself several times if had I missed a silence or a sigh and what it could mean? To quell my doubts, I conducted several member checks by email with the participants with additional questions at different stages to clarify any doubts. Their responses were then added to their stories as points of clarification that provided more depth to their narration and built on the complexity of their voices.

I created a demographic chart to better understand the participants’ context and validate their voices. This chart contained details such as who the participants were, where the significance of some narrative points was attached, and what the outcomes of those were, and where and when these events occurred. This helped create a chronological list of events that I have used to represent my findings in Chapter Four.

Data Analysis

To investigate the secondary teachers’ experiences teaching online during the COVID-19 pandemic, a critical event analysis (Webster & Mertova, 2007) method was employed. A significant feature of this method is eliciting critical events related to teachers’ online teaching experiences during the COVID-19 pandemic. The research uncovered a variety of similar issues and concerns among the teachers about their teaching experiences. The term critical incident technique (CIT) (Butterfield et al., 2005) is known by many other names, including critical incident analysis (Gould, 1999, as cited in Butterfield et al., 2005), critical event technique (Kunak, 1989, as cited in Butterfield et al., 2005), critical incidents technique (Schwab et al., 1975, as cited in Butterfield et al., 2005), critical incident exercise (Rutman, 1996, as cited in Butterfield et al., 2005), critical incident study technique (Cottrell et al., 2002, as cited in Butterfield et al., 2005), critical incident report (Kluender, 1987, as cited in Butterfield et al., 2005), and critical incident reflection (Francis, 1995, as cited in Butterfield et al., 2005). These are all examples of the term used for studies utilizing the CIT research method (Flanagan, 1954) that critical events analysis (Webster & Mertova, 2007) is based on.
Critical Events Analysis

Critical events analysis (Webster & Mertova, 2007) describes critical events, sometimes also referred to as critical incidents, that have the “right mix of ingredients, at the right time and in the right context” (Woods, 1993, as cited in Webster & Mertova, 2007, p. 102). In the context of this study, the critical event was the COVID-19 pandemic, and it produced an opportunity for educational researchers to explore teachers’ teaching experiences as well as their innovations and failures in the context of emergency remote teaching. Critical events may be both positive and negative, but in the context of teaching and learning they have to be critically impactful, as in the case of the COVID-19 pandemic.

These events may be important because we believe that they set in order a subsequent chain of events that lead to certain outcomes. They may also be important because if the events were incorrectly taken away (or changed), the outcomes of interest would not have occurred or the outcomes may have been vastly different. The events on which we focus as critical events are usually conditional occurrences that could have turned out differently. Therefore, had these occurrences not taken place the trajectory of our lives may have been vastly different (Webster & Mertova, 2007). If the COVID-19 pandemic had not happened, we as researchers might not have found an opportunity to closely examine online teaching and the experiences of teachers involved in this format of teaching.

Distinctive Features of the Critical Events

Creswell (1998) stated that each qualitative method has its own distinctive features that make it unique, and the researcher has to understand those features to apply the methods in their study. For this study, Creswell’s (1998) five dimensions of qualitative study methods was aligned with the critical analysis method (Butterfield et al., 2005, p. 483) to come up with its distinctive features:

1. Focus on critical events or incidents that effectively echo the experience of that event.
2. The origin of this discipline is from industrial and organizational psychology.
3. Data collection is done primarily through interviews.
4. The frame of reference is important for data analysis by forming categories that emerge from the data and determining how specific or general the categories will be.
5. A narrative form is adopted to describe the categories and definitions are operationalized with self-descriptive titles.

Choosing the Critical Events Analysis Method

Each qualitative research method can be applied to answer a different kind of research question. Each qualitative research method is designed and applied to answer specific types of research questions. For example, grounded theory explores the process of something, a case study provides a deep description of a person or a situation/case, phenomenology explores a person’s experience of something. Critical events explore what helps or hinders a particular experience or activity (Butterfield et al., 2009, p. 483).

A critical event almost always is experienced as a change wherein the narrator expresses the differences between their ideal worldview and the reality of their experiences (Fay, 2000). Critical events are exploratory by nature and are suitable for use when a researcher is examining events or incidents that have not been understood in great detail. Therefore, this form of analysis is highly suitable for analyzing the interview data in the context of this study. According to
O’Driscol and Cooper (1994) the advantages of the critical events method are that it links the specific actions or strategies an actor takes during specific events.

**Five Steps in Conducting Critical Events Analysis**

Critical events analysis has been built off Flanagan’s (1954) critical incident technique (CIT). Flanagan (1954) describes CIT as having five major steps:

- Ascertaining the general aims of the activity being studied
- Making plans and setting specifications
- Collecting data
- Analyzing the data
- Interpreting the data and reporting the results

Each of these steps will be addressed in greater detail in the following sections.

**Ascertainment the General Aims of the Activity Being Studied.** In the context of this study, the purpose is to elicit the teaching experiences of K-12 secondary teachers during the COVID-19 pandemic. The purpose of the research interviews was to understand the strategies of the teachers as they experienced teaching online during the COVID-19 pandemic and as they transitioned to face-to-face classrooms.

**Making Plans and Setting Specifications.** Here the interview protocol (Appendix D) was developed.

1) Defining the types of situations to be observed: I did not employ any direct observations of the participants’ teaching practices but relied on their reported experiences during the interviews.

2) Determining the situation’s relevance to the general aim: The relevance of the situation was to collect data on how the secondary teachers experienced teaching online during the COVID-19 pandemic and how they returned to traditional face-to-face teaching.

3) Understanding the extent of the effect the incident has on the general aim: Determining through the interviews how COVID-19 impacted the participants’ teaching.

4) Deciding who will make the observations: The researcher conducted the interviews that were reviewed by an expert.

**Collecting Data.** The interview questions were developed by closely following the BEI (Butterfield et al., 2009; McClelland, 1973). The format of the interview guide is important in a critical event study to ensure that critical incidents (CI) and wish list (WL) items are easily identified. It is also important that the supporting details for each item (an example and the importance of the item for the participant) are captured during the research interview. For this reason, CI and WL questions were embedded in the interviews.

**Analyzing the Data.**

1) Determining the frame of reference: What will the data be used for? In this study the data was used to examine how secondary teachers experienced teaching online during the COVID-19 pandemic and how they returned to traditional face-to-face teaching.
2) Formulating categories derived from grouping similar/same incidents: This entailed organizing snippets of participants’ interview transcripts into similar categories and incidents.

3) Determining the level of specificity or generality to be used in reporting the data: This was determined by practical considerations such as project budget (this study was not a paid or funded study so there was no budget), number of people available to analyze the data (the data was primarily analyzed by myself, with some parts reviewed by a specialist, and peer reviews by other graduate students to establish inter-rater reliability (McDonald et al., 2019). Inter-rater reliability is the extent to which two or more raters/coders agree (Lange, 2011), the extent to which a few self-reported general behaviors of the participants will be useful compared to several dozen specific behaviors, and so on.
   a) Organizing raw data: This step consisted of coding the data (Saldana, 2013).
   b) Identifying the CI (critical incidents) and WL (wish list items): CIs and WLs were extracted at this stage. Questions about CIs, hindering CIs, and WLs were incorporated within the interview questions. After the interviews were transcribed, the CI and WL items were copied onto another document with the participant names and numbers. This document was sent to the participants for member checking for credibility purposes. A table was created for CI and WL items to let new categories emerge from this data, until data exhaustiveness was reached (Butterfield, et al., 2009).
   c) Creating the categories: CIs were extracted from the first transcript (Helping CIs, Hindering CIs, and WL items). A separate document of CIs and WLs was sent to the participants for member checking for credibility purposes. A table was created for CI and WL items to let new categories emerge from this data, till data exhaustiveness was reached (Butterfield, et al., 2009).

**CIs, Hindering CIs, and WLs: Reliability and Credibility of Data.** Butterfield et al. (2009) have suggested conducting a second interview, but this was not done in recognition of the participants’ workload and time restraint. However, there were two to three rounds of email conversation with each of the participants while the member checking for the CIs was being done. This is one of the limitations of this study and is discussed in Chapter Five. Therefore, the sole interview had questions regarding CIs, hindering CIs, and WL items embedded into the interview questions.

The purpose at this stage is to create a new categorization scheme that summarizes and describes the data in a useful manner, while at the same time “sacrificing as little as possible of their comprehensiveness, specificity, and validity” (Flanagan, 1954, p. 344). Flanagan thought the categorization process was more subjective than objective, with no simple rules available to guide the researcher. In Table 6 I have described these new categories. Flanagan (1954) described the process this way:

The usual procedure is to sort a relatively small sample of incidents into piles that are related to the frame of reference selected. After these tentative categories have been established, brief definitions of them are made, and additional incidents are classified into them. During this process, needs for redefinition and for the development of new categories are noted. The tentative categories are modified as indicated and the process continues until all the incidents have been classified. (p. 344–5)
I used two methods for establishing the credibility of the categories—participation rate and recruiting a coder who independently extracted critical incidents from the interview transcripts to see how they matched with the ones I extracted.

**Table 6**  
*Sample Table for Tracking the Emergence of New Categories*

<table>
<thead>
<tr>
<th>CI/WL Extraction Date</th>
<th>Participant # and Initials</th>
<th>Date Categorized</th>
<th>New Categories Emerged</th>
</tr>
</thead>
</table>
| Jan 6, 2022           | 1 JS                       | Jan 29, 2022     | • CI - Self-care, taking online classes about happiness, off technology, work-life balance  
• Hindering CI - Developing more technology skills, administrative support  
• WL - Great planning for all the classes including lesson plans and scaffolding |
| Jan 6, 2022           | 2 CS                       | Jan 31, 2022     | • CI - Self-care, exercising, drinking, and eating well  
• Hindering CI - Feeling helpless about not being able to help all students  
• WL - Better memory and able to access information quickly |
| Jan 16, 2022          | 3 VS                       | Jan 29, 2022     | • CI - Flexibility to adapt to various situations  
• Hindering CI - Developing technology expertise, administrative support  
• WL - Administrative and parental support |
| Jan 16, 2022          | 4 SD                       | Jan 27, 2022     | • CI - Well equipped technology support, support from administration and colleagues  
• Hindering CI - Unstable internet connection and bugs in software  
• WL - Connecting to global students through webinars |
| Jan 17, 2022          | 5 JR                       | Jan 31, 2022     | • CI - Taking care of health, don’t overdo the teaching part  
• Hindering CI - Administrative and parental support  
• WL - Administrative and parental support, scaffolding |

*Note: CI = Critical Incident; WL = Wish List*

I recruited another graduate student as an independent coder who randomly chose 25% of the transcripts and extracted the CIs, Hindering CIs and WLs. Since I had five teacher participants, 25% of that would be 1.25 so I rounded that down to one transcript. The coder
chose the transcript for teacher participant JS. Only in the CIs did a new category emerge: “Learning to say No.” Table 7 shows how the other coder extracted the categories for one category: “Administrative and Parental Support.”

Table 7
Sample Table for Tracking the Emergence of New Categories by Another Coder

<table>
<thead>
<tr>
<th>Date of CI/ WL Extraction</th>
<th>Participant</th>
<th>Date Categorized</th>
<th>New Categories Emerged</th>
</tr>
</thead>
</table>
| Jan 31, 2022              | JS          | Feb 3, 2022      | • CI - Self care, work-life balance, learning to say No.  
|                           |             |                  | • Hindering CI - Developing more technology skills, administrative support  
|                           |             |                  | • WL - Great planning for all the classes including lesson plans and scaffolding |

Next, I calculated the participation rates. For example, to calculate the participation numbers for the category “Administrative and Parental Support,” three participants out of five mentioned this. So, we simply divide the number of participants for this category (three) by the total number of teacher participants (five) to get 0.6%.

**Member Checking.** These categorizations and percentage calculations were shared with the participants for member checking via emails. This ensured reliability of the data collected and credibility of the data. There were three rounds of member checking.

**Interpreting the Data and Reporting the Results.** The following section describes how I conducted the nine credibility checks for this study.

**Audiotaping Interviews.** The interviews were audio taped with the permission of the participants at the beginning of each interview for accuracy purposes and for ease of transcribing the interview later.

**Interview Fidelity.** An expert in the critical analysis method listened and checked to assess if the interviews were conducted in alignment with the BEI, to every third or fourth taped interview. The expert who performed this role was a professor of inquiry at Indiana University.

**Independent Extraction of CIs.** Another researcher who is a graduate student extracted the CIs from an original interview transcript to establish inter-rater reliability (IRR) (McDonald et al., 2019).

**Exhaustiveness.** Each interview was logged based on its CIs and WL. Questions about CIs, Hindering Cis, and WLs were incorporated into the interview questions. After the interviews were transcribed, the CI and WL items were copied onto another document with the participant’s name and number. This document was sent to each of the participants for member checking for credibility purposes. A table was created for CI and WL items to let new categories emerge from this data, until data exhaustiveness was reached (Butterfield, et al., 2009). This table for data extraction was only for the CIs, Hindering CIs, and WLs, questions about which were embedded in the interview questions. The rest of data was analyzed through the first and second cycles of coding (Saldana, 2013).

**Participation Rates.** Each participant name and number were mentioned in the categories document for CI and WL. This allowed for calculating participant rates to establish credibility of the categories as they were being formed and also for confirming the strength of a category when reviewing the results of the study (Borgen & Amundson, 1984). This percentage can be
calculated by counting the number of different participants under each category (CI and WL) and dividing that number by the total number of participants. In this study, under the CI “Administrative and Parental Support,” three participants provided items for this category out of five participants. So, I simply divided the number of participants for this category (three) by the total number of teacher participants (five) (Butterfield et al., 2009) to get 0.6%.

**Placing Incidents into Categories by an Independent Judge.** The purpose of this step was to have an independent researcher put 25% of the CIs and WL items into the categories that I created and to calculate the alignment between their placements and mine (Butterfield et al., 2005). I randomly chose 25% of the incidents within each category and sent them to an independent researcher (another graduate student), along with the category headings and operational definitions, asking them to place each incident into the appropriate category. I compared their placement of CIs and WL items into categories with my own placement of 0.6% for one category “Administrative and Parental Support.” Andersson and Nilsson (1964) suggested a match rate guideline of 80% or better for this credibility check. In case of a discrepancy the participant determines in which categories their CIs and WLs belong.

**Cross-checking by Participants.** This step is to confirm with participants that the CIs and WLs have been placed in the correct categories. This was done through the second round of member checking of the categories document. This afforded participants an opportunity to review the categories and judge how well those categories captured their lived experiences of the COVID-19 pandemic. In the email accompanying the categories document the participants were asked: a) Are the helping/hindering CIs and WL items correct? b) Do you feel anything is missing? c) Is there anything that you need me to revise? d) Do you have any other comments?

After the participant reviewed the document and responded, the document was revised and again shared with them. The participants re-reviewed the categories into which the CIs and WL items had been placed and answered the following questions: a) Do the category headings make sense to you? b) Do the category headings capture your experience and the meaning that the incident or factor had for you? c) Are there any incidents in the categories that do not appear to fit from your perspective? If so, where do you think they belong? This iterative process ensured that participants’ voices were honored and reported accurately which was the primary goal of this study.

**Expert Opinions.** The categories were checked by two experts in the field: a professor in the inquiry department and a professor in the instructional systems technology department, both at Indiana University. They were then asked the following questions: a) Do you find the categories to be useful? b) Are you surprised by any of the categories? c) Do you think there is anything missing based on your experience (Butterfield et al., 2005; Flanagan, 1954)?

**Theoretical Agreement.** This step was intended to identify assumptions underlying the study and comparing emergent categories with relevant literature. However, both my conceptual framework (ERTE: Emergence Remote Teaching Environment) and the theoretical framework (STF: Strategic Teaching Framework) were used to situate the study and create newer meanings, assigning more weight and significance to teachers’ voices, feelings, and emotions.

The theoretical agreement has two parts. The first identifies and reports the assumptions underlying the study. In this study, some of the assumptions were that people are aware that they
experience change and can describe their feelings, emotions, and responses; change is inevitable in people’s lives and circumstances; and if there is change in the environment, the actor is not responsible for that change. My conceptual framework, ERTE, supported these assumptions and helped me understand and establish these assumptions at the beginning of the study.

The second part of the theoretical agreement compares the emergent categories with relevant scholarly literature. Relying on the STF framework allowed me to focus on the online teaching experiences of secondary K-12 teachers during the COVID-19 pandemic and to explore the relationships among the components (Ravitch & Riggan, 2017). However, I did not attempt to bound or limit my data within the understanding of the theoretical framework, but to free it up to create newer meanings and assign more weight and significance to teachers’ voices, feelings, and emotions. The specifications of the STF helped me to interpret the findings without limiting the discussion of new emergent findings. These specifications included providing professional development opportunities for teachers, analyzing teacher and learner characteristics, defining tasks that are authentic and that help students engage in an online learning environment, helping learners identify their own learning needs, establishing school characteristics that either support the teacher or do not, and designing assessments that help students reflect on their learning.

To summarize, the nine credibility checks that were performed on the interview data and their accompanying results are shown in Table 8.

<table>
<thead>
<tr>
<th>Table 8</th>
<th>Nine Credibility Checks</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>JS</td>
</tr>
<tr>
<td>Audio-taped interviews</td>
<td>Yes</td>
</tr>
<tr>
<td>Interview fidelity</td>
<td>Yes</td>
</tr>
</tbody>
</table>

470
CI extraction

CIs: Self-care, taking online classes about happiness, off technology, work-life balance
Hindering CIs: Developing more technology skills, administrative support
WL: Great planning for all the classes including lesson plans and scaffolding

CIs: Self-care, exercising, drinking and eating well
Hindering CIs: Feeling helpless about not being able to help all student
WL: Better memory and able to access information quickly

CIs: Flexibility to adapt to various situations
Hindering CIs: Developing technology expertise, administrative support
WL: Admin. and parental support

CIs: Well-equipped technology support, support from administration and colleagues
Hindering CIs: Unstable internet connection and bugs in software
WL: Connecting to global students through webinars

CIs: Taking care of health, don’t overdo the teaching part
Hindering CIs: Administrative and parental support
WL: Admin. and parental support, scaffolding

<table>
<thead>
<tr>
<th>CI and WL Log</th>
<th>CIs &amp; WLs logged</th>
<th>CIs &amp; WLs logged</th>
<th>CIs &amp; WLs logged</th>
<th>CIs &amp; WLs logged</th>
<th>CIs &amp; WLs logged</th>
</tr>
</thead>
<tbody>
<tr>
<td>Particip. rates</td>
<td>● 0.5% ● 0.6% ● 0.6% and 0.4%</td>
<td>● 0.5% ● 0.2% ● 0.2%</td>
<td>● 0.2% ● 0.6% ● 0.6%</td>
<td>● 0.2% ● 0.2% ● 0.2%</td>
<td>● 0.5% ● 0.6% ● 0.6% and 0.4%</td>
</tr>
<tr>
<td>Independ. categorization</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Member checking</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Expert opinion</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Theoret. agreement</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
</tbody>
</table>

Validity, Reliability, and Transferability

The data was triangulated (through multiple interviews and lesson plans) to ensure credibility (internal validity) and member checking that was conducted multiple times after the interview data was transcribed at different stages through email conversation with the participants. Similarity in responses by the research participants during the interview process helped me to corroborate the research instrument and ensure the accuracy of responses (Stevenson & Mahmut, 2013). To establish transferability (external validity), I provided “thick descriptions” (Geertz, 1973) about the participants, their work context, research context. I employed purposive sampling to recruit the research participants (Fraenkel et al., 2015). To
maintain reliability of the analyzed data and establish inter-rater reliability, another doctoral student reviewed the interview transcripts and the emergent codes and themes (McDonald et al., 2019) for similarity in their findings. Inter-rater reliability is the extent to which two or more coders (or raters) agree (Lange, 2011) on the codes or themes that emerge. Out of the 174 second-cycle codes that emerged, the other rater agreed on 169 candidate themes, resulting in a .97 (97%) inter-rater agreement. To find this percentage I divided the number of the themes we both agreed on with the total number of themes that initially emerged, and then converted that to a percentage (Glen, 2016).

The trustworthiness criteria (Lincoln & Guba, 1985) of this study are illustrated in Table 10 (Anfara et al., 2002).

**Table 10**

<table>
<thead>
<tr>
<th>Trustworthiness Criteria</th>
<th>Strategy Employed</th>
</tr>
</thead>
</table>
| **Credibility**          | • Triangulation (through multiple interviews)  
                           | • Member checking (after the interview transcriptions through email conversations with the participants at different stages) |
| **Transferability**      | • Provide thick descriptions (about the research context, participants and their work context)  
                           | • Purposive sampling of participants |
| **Reliability**          | • Triangulation (through multiple interviews)  
                           | • Inter-rater reliability checking with another coder |

**Researcher Positionality**

This positionality statement addresses my role in relation to the research I conducted for this dissertation. As such, the following section is meant to explore my beliefs, values, and experiences in relation to the research topic to provide the reader with insight about who I am and how my experiences may have influenced my perceptions and understanding of the teacher participants and their experiences.

I am an international student of Asian Indian heritage studying instructional systems technology and am a former middle and high school teacher and instructional designer. I approached this study with some understanding of instructional strategies used in K-12 classrooms, the experiences of K-12 teachers, and their challenges of teaching online during the COVID-19 pandemic. This understanding developed while I conducted my last study, Chaudhuri (2022) which helped me to understand that K-12 teachers do not use instructional strategies with a limited scope and they may use several strategies for a single lesson or assignment. My motivation for studying instructional technology came from my previous experience as both a teacher and an instructional designer, sparking my interest in understanding the issues related to
using technology in a K-12 environment. With this background, I have studied the issues related to the use of instructional technology and strategies in K-12 schools and how they impact student achievement and learning outcomes.

As a former teacher and instructional designer, I am keen to understand and amplify teacher voices that are often lost in structural studies about instructional strategies teachers use, the challenges they face in using technology, student engagement, for example. Above and beyond these issues, teachers want and need to talk about what they feel, think, and do, such as in critical situations like the COVID-19 pandemic. In trying to understand the bigger picture of how they navigated education through an online platform during the pandemic, I realized that teachers’ thoughts and feelings are neglected and fall short of making it to a larger audience. That said, the strength of my study lies in uncovering teachers’ emotions and feelings about teaching online, how they attempted to engage students, the support or lack of it from their school districts, and the innovative manner in which they hurriedly put together content for unfamiliar online platforms, and work duress.

**FINDINGS**

This section presents findings of the data analyses associated with the one research question that guided this study: How did secondary teachers experience teaching online during the COVID-19 pandemic? A discussion of these findings is organized chronologically by themes that they took place, i.e., the emergent themes are discussed within the chronology. The chronology of events is presented as initial panic and chaos; springing into action; wins and losses; survival of the fittest; fallout; and teachers are people, too. This is followed by events identified as critical incidents, hindering incidents, and hindsight 20/20. General characteristics of the sample and respondents, and threats to the study's validity are also presented.

The findings are presented in a narrative manner (not as a narrative analysis) (Riessman, 1993). This allowed me to narrate the story of what the teachers reported to me and be true to their voices and emotions. Teacher participants acted similarly in some scenarios and differently in others. My intent was to stay as close to the teachers’ voices and present their stories while incorporating my own perspectival analysis. I present the findings in a chronological rather than a categorized manner. My findings are not airtight but rather unbound and unconfining, almost flowing to the next one to complete the story. So, not only do the themes complete each other, sometimes the teachers' voices also add on to one another or differ completely to reveal a very real landscape of education during the COVID-19 pandemic.

A short writeup about the teacher participants begins the chapter. This includes not just basic demographic information but descriptions of them as people so that my audience can recognize and hear their voices.

**Participant Teacher Portraits**

The five participants in this study were recruited through several means, such as a university office that works with K-12 secondary schools, social media, and snowballing. All five participants are secondary teachers with different levels of experience, but a lot of experience using technology in teaching. However, using technology in teaching and teaching through technology are quite different things that my participants clarified in their responses. In the following section each participant is introduced in the order in which they were interviewed.
JS (Interviewed on January 6, 2022)

They were a teacher at a high school in a northwestern state. They were recruited through an email sent to a K-12 school list and they responded and agreed to participate in the interview. They had been a teacher for 22 years and teaching high school at their current school for 20 years. Because they had been teaching high school for so many years, they did not cope well with elementary or middle school behavior, a great issue coming back to face-to-face classrooms after the COVID-19 pandemic school closures.

JS had a master’s in education and national board certification. At school, they taught a host of different classes including three different computer science classes, two of which were AP level. They also taught visual communications such as photography, Photoshop™, interior design, architecture, and video game design. JS looked tired during the interview and mentioned many times that their teaching load was huge with six different classes. On the surface this might just sound like an ordinary complaint, but on a deeper level it is speaking of the national school system and what it lacks.

CS (Interviewed on January 6, 2022)

CS was a high school teacher for over 37 years and also was recruited through official email, to which they responded and agreed to participate in the interview. They had taught in a couple of school districts and also overseas in Japan and Germany. They first started in the current district they are in, in 1998. It was a brand-new school. Then, four years later, in 2002, they went overseas to teach in Germany in a Department of Defense Dependent school for Army kids. They returned to their northwestern state and taught in the school district for 14 years, relocated to Germany for a few years, and finally returned to the school district they were teaching in at the time of the study. This was their fifth year in this position.

CS taught a host of subjects in business law and finds it very enjoyable to teach. There were always great students in that class and it was pretty popular. Personal finance was always popular and so those classes filled up easily. There was also a new traffic safety financial education class introduced where the number of sections grew from one to four. CS used to teach a technology literacy class to ninth graders but had given that up and gone with upperclassmen.

The technology literacy classes were also a very good for the students. Students learned a little bit about phone usage and how smartphones can affect their emotional state of mind and also about Microsoft Word™, Excel™, and PowerPoint™. Students take the Precision Exams tests in that class for CTE (CS for Career and Technical Education). Precision Exams are capstone certifications that students can take at the end of their CTE courses. CS claimed to have good rapport with the students, which came through in the interview. CS earned a bachelor’s degree and a master’s degree in interdisciplinary studies and had a teaching certificate. CS was a stockbroker before becoming a teacher.

VS (Interviewed on January 16, 2022)

VS taught as an interventionist for middle school grades in math and English at a private Catholic school. This means that they work with small groups of students that are struggling in math and reading on the Northwest Evaluation Association (NWEA) test that provides the measures of academic progress (MAP) for students (i.e., not every student at that grade level). The school used those test scores to see who needed extra help in those subject areas. VS pulls out groups throughout the day, four times a week, for math or for reading. They saw the students
at least twice a day, twice a week. VS had been working as a teacher for 13 years and one year in their current job.

VS had a master’s degree in classical studies and was pursuing a doctoral degree. I recruited them through snowballing from other participants. As a parent, they understand very deeply the conundrum that parents were in and yet wished that parents had been more understanding of the pandemic situation and where it left the school system.

**SD (Interviewed on January 16, 2022)**

SD was also recruited through a social media call and responded there and agreed to participate in the interviews. They had been teaching at a midwestern state school for three years and had been a teacher for seven years. They had schooling experience in a foreign country, giving them a unique perspective that came through in their interview responses. They had a bachelor’s in engineering and taught science and math at the junior and senior levels.

**JR (Interviewed on January 17, 2022)**

JR was originally from Spain and was a bilingual teacher in a Midwestern state school. I recruited them through official email to which they responded and agreed to participate in the interview. As a bilingual teacher they taught all middle grade subject areas but they specialized in computers and technology. They had been teaching for a total of 14 years and were enthusiastic about making their students interested in science and technology subjects.

Interestingly, JR had a lot of experience in online learning, so that proved to be very useful once schools went online. They just completed their master’s in educational leadership. JR was very vocal about teacher pay issues and felt that teachers’ pay should be commensurate with the massive amount of work they are expected to do and, quite literally, they do. They work extra hours and weekends so I felt that they were justified in feeling that way. I heard this tonal quality from three other teachers, but they were vocal about being overworked.

After having presented the teachers’ biographies, the next section will explain the thematic findings of my study. As mentioned previously, these will be presented chronologically.

**Themes Identified**

In this section I discuss the general findings under these themes: initial panic and chaos; springing into action; wins and losses; survival of the fittest; fallout; and teachers are people, too. This is followed by events identified as critical incidents, hindering incidents, and hindsight 20/20.

**Figure 4**

*Emergent Themes*
Initial Panic and Chaos

Each of the teacher participants displayed and reported feelings of panic, fear, and chaos once they heard about the COVID-19 pandemic. In the early months of 2020, there was not much information about the disease to put the ill-at-ease teachers at rest. More than the disease itself, each participant reported that they were worried about their students' situations, how they would continue learning from home, their home conditions, if they had internet access and devices, and so on.

Everyone Described Their Emotions

As teacher SD said, though teachers took up the challenge in a matter of a single day, it was still a panicky time for the teacher community. Knowing that everything would be shut down, the home-based teachers were worried about continuing to impart instruction. All in all, it was an extremely challenging situation.

JS said that in their state there was no quarantine in March 2020. They went fully online and ended up giving all students A’s before the school district could decide how assessment and grading would be done for the rest of the school year. In the fall of 2020, they were still teaching remotely, so school started with all new students and classes remote and using Zoom™. Online classes were synchronous in the mornings and asynchronous in the afternoons. This allowed students to complete their homework or assignments or get clarification of doubts. Most students were on Zoom™ and excited to get back and participate in the class activities. There were, of course, students who were absent and despite many efforts the school could not figure out what was going on with them. As a teacher, what I heard in JS’ voice was a sense of deep worry that not only were these students missing classwork but, more importantly, how they were getting
through daily life. There was a deep sense of resignation in their voice that I later heard from other teachers, too.

Eventually, the school decided they would do every other day in person. Not only did teachers have to teach remotely, they also formatted the same content for face-to-face classes, as well. Here I take a moment to think about the workload and the amount of reorganization that teachers had to do on a regular basis. JS reported that in each class, about 15 students would come in and the rest would be online. Gradually students seemed to prefer the remote mode, so the number of students in the classes started dwindling.

The next semester, fall 2021, the school decided to return to fully remote. But in the spring of 2022, teachers started going into school every other day. Teachers came in for hour-long classes and if the students were there, they had to have masks on. If they were at home they could join by Zoom™. In the afternoons, it would be asynchronous so that students could get help for homework and assignments. Unfortunately, that did not work out well for most students and it was only the academically talented students that were able to do the asynchronous work.

By the fall of 2021, the school announced that teachers should expect business as usual and the school tried to prepare the teachers for the social and emotional upheaval of the students. Teachers had a presentation from a counselor where she said that middle school is all about making and breaking friendships and figuring out who you are. As a parent of a 20-year-old, JS was quite aware of that and felt empathetic toward the students.

When the students were back in school in Spring 2022, attendance was still not high. For students who were at school, they were in masks, socially distanced, and teachers could not engage them in any kind of group work that they used to do. Just as JS had said, face-to-face classes were not the same as three years back. I heard a sense of concern about this in the teachers’ voices as they described struggling to bring back normalcy to their classrooms. It was not only about the curriculum, but the social-emotional connections of the students and improving the attendance numbers at school.

JS understood the need of the students and planned for students to be outside of the classroom more so that they did not have to wear masks and could mix more freely with one another. JS mainly taught computer-related subjects and for high school they did not usually prefer ice breaking activities. But this time was different. During the start of each class, for almost three weeks, they would have different ice breaking activities outside for the first ten minutes so that the students could bond with one another and find that rapport. The students enjoyed it at first but, with high school students, the activities were not sustainable. Many students felt uncomfortable taking their masks off, even if it was outside. So, JS stopped this activity because it was defeating the purpose. Instead, they tried to have conversations about different topics and issues, trying to make connections and learn about each other. JS mentioned substituting for a class which she had earlier taught when the students were freshmen and now when she acted as a substitute teacher, the students were juniors and it was hard for JS to recognize and reconnect to everyone. This made me consider that there is so much more to teaching than just covering the curriculum and how profoundly teachers think of making connections to their students.

One thing JS noticed when students came back to school was that their behavior had become very irresponsible and immature. As a high school teacher for around 20 years, they were used to students knowing how to conduct themselves in class, so this was a shock. Other teachers that I spoke to expressed similar feelings. Seeing a pandemic up close, students may have become reckless, especially when schools did not enforce consequences for bad behavior or...
failing grades and attendance. Students were coming into class, unplugging cords from computers, switching mice, vandalizing school property, and stealing JS’s sweatshirt. On top of this there were bomb threats from a student threatening to blow up the whole school. The school had security precautions and guns on campus, things that no student should have to see. For JR this was the most horrible year in their entire teaching career.

So, once schools started reopening it was a whole new ballgame. No one knew for sure what the sanitization protocols were. Were students supposed to touch sanitizing materials? Parents did not want their students to touch sanitizing chemicals to clean the stuff they used in school.

When schools gradually started reopening, teachers had their own strategies for easing the students back to the face-to-face learning environment they had been accustomed to three years earlier. For example, JS considered ice breakers but realized they had done too many of those during the online classes and students were bored with them. Teachers had videos of the lesson plans and planned on utilizing them as students eased back into classes, especially for children who would be absent from class. They also started using Kahoot™ and the students found this quiz platform engaging because there was a component of competition that students appreciated. While the face-to-face-face option was now available, the teachers found it frustrating that the schools had only the face-to-face option and had completely removed the online instruction.

CS said they went back to face-to-face instruction in September of 2021 (Fall 2021), but some kids were catching the COVID variant and everyone had to be more vigilant. Those students had to go back to remote learning when, for example, 16 out of the 28 kids in CS’s class were absent. If they school had completely removed the online learning option, it would be tricky situation. These details about schools reopening are not found in literature, although there will likely be more studies on schools reopening and the impact of that on student learning.

The variant that the students were being infected with was not as dangerous and most kids completed their quarantine and returned to class fairly quickly, but because of student quarantines some after school programs were affected. For example, the girls’ wrestling team had to cancel a tournament with other high schools because many team members had contracted the variant. The wrestling team went on quarantine and CS had to plan hybrid classes to continue their instruction. When a class had to go hybrid, the teachers benefited from the online programs they had learned previously, for the face-to-face classes they continued to put assignments on Microsoft Teams™, and the students continued to use the personal finance curriculum online.

These are small and probably insignificant incidents in the bigger scheme of the COVID-19 pandemic. To the teachers, however, these were critical pockets of decision making and they had to make decisions for which they might have had to answer to administration for later. Communication with the school districts or administration was not always clear or instantaneous but the teachers did what the students needed during a particular situation. This study therefore is an important contribution to the study of the COVID-19 pandemic as a whole, especially when it concerns how teachers experienced teaching and the makeshift decisions they made to keep going.

For JR, just managing the students in a physical environment was challenging. Families had not stayed in touch with teachers, so it wasn’t possible to talk with them about their children. The classroom situation was very different from what it was three years earlier, before the pandemic. Other teachers shared similar experiences. Students did not want to engage in the curriculum because there were no consequences for not being in school.
JR had been the bilingual teacher for the fifth and sixth grades, but began teaching a self-contained sixth grade class because teachers were leaving, resulting in a shortage of teachers. JR was teaching everything except special education. The teachers’ contracts for that year precluded teaching remotely, but teachers could work with students online who were absent from in-person classes. The teachers could upload activities on Google Classroom™ and students could email teachers, but the teachers were not to use the videos of themselves they had uploaded previously, although JR uploaded some videos that just told the students what they needed to do. If students had questions, they could send JR an email. Out of 11 students only one emailed regularly. The focus became coordinating what was going on with the kids. Everyone had to wear masks and be vaccinated or be tested every week.

Again, such incidents were scarcely mentioned in the literature and the information gleaned from the participants made this study rich and well-informed. This applies most closely to the inquire component of the ERTE framework used in this study (Whittle et al., 2020). In this situation teachers assessed the resources they had at hand for face-to-face teaching.

The most challenging part in this transition was trying to reconnect to the students. JS thought that blogging would still be a big part of instruction because it worked well online, but it did not work well when students returned to classes, probably because online fatigue had already set in. That was a failure and JS thought that students were burned out with online stuff and did not want more online activities. When they were all online it seemed more like a community of learners, which they would typically feel in their classroom. These kinds of empirical studies were not found on literature. The STF (Jones et al., 1993), however, included components such as required media, role of facilitators, and instructional strategies because the relationships among between these components made learning and teaching a rich and gainful experience.

While returning to F2F instruction, the biggest challenge was using strategies like collaboration and group work, because of social distancing and wearing masks. Students were not used to these protocols within the classrooms and therefore, as respondents noted, many classroom activities fell short of their intended outcomes.

Another issue absent from the literature is the threat of violence from students with guns and bombs as they returned to classes. JS mentioned that with the threat of violence they were not allowed to have more than one student outside of the class at a time and their attention was distracted by the bad behavior. Teachers felt they lacked skills to deal with student misbehavior, because they had never had to teach students to stay in class until the bell rang, for example. That was the pre-pandemic protocol. Teachers had always just taught, especially high school teachers, not dealt with classroom behaviors such as students not cleaning up after themselves. Circumstances and situations like these are absent from the literature. Going through so much and still doing their jobs with integrity and honesty, we as a nation should stand up and salute the teachers. Policy makers should pay more attention to teacher voices going forward.

In the face-to-face classes at JS’s school, Wednesday was a non-student day so teachers could focus on lesson plans and other communications, and the students were given asynchronous assignments. JS’s courses were very hands-on, so those lesson plans were challenging if students had to be home. Since students, built things in those classes, they needed supplies and it was difficult to organize the teaching if the students were at home since JS could not be sure if students had those supplies at home or arranging how they could pick them up from school ahead of the class. While teaching one group of students, JS had to plan for the next group and the project they would do. That meant buying the supplies and keeping them ready so students could pick them up a week before the project started. Parents and students would come
in to pick up their books, art supplies, or the supplies for a project. This was like a cycle, constantly decoding what to do next, getting materials ready, and putting everything in packets. Unfortunately, there were students who were not connected or interested enough and had to be reminded repeatedly to come and pick up their stuff. Returning to F2F classes was challenging and it was not the same as three years back. These findings should contribute to a deeper understanding of the teaching experience during the COVID-19 pandemic.

JR was a bilingual teacher during the pandemic and was also teaching science, among other subjects. It is important to mention here that during that time the school did not have enough teachers to cover all grade levels, so JR was contained in the sixth grade. This meant that they were teaching all subjects in sixth grade because there were no other teachers who could cover any subject area in that grade level. Because there were too few teachers, the school was hiring unqualified substitute teachers. One of the substitute teachers that the school hired has been an army veteran all their life. So, they had skills different than what a teacher needed. JR’s concern was that without specific teacher training, how would the substitutes address classroom management and student behaviors, let alone cover the curriculum.

There was also a discussion about dividing the bilingual group and this JR stood up against. The last five years the school had been constantly shifting their rooms. JR argued that they needed to keep their room because the students were accustomed to it, it helped to build a routine, and they did not have keep moving their resources. On a macro level, this might not be a problem, but on a micro level, it could be an obstacle for teachers to do their everyday jobs. In this study, I have attempted to listen to teachers at micro levels to amplify their voices that may not seem to matter when it comes to major educational narratives.

JR firmly stated that they stood up because they felt that all their life they had been saying yes. “Because I noticed also, there have been all my life being a teacher, that I'm the one accepting everything. Can you can you stay one more hour? Can you stay? Can you come to work? Yes, sure. Can you teach me? Yeah, sure. Hey, because I can, because I can. But it is certain point is it now you know, you're not giving anything in return?” Why were they working so hard under those stringent circumstances? JR said, “I'm doing because I'm work I want it for the kids. Not for any other reasons for the kids for the school.” For me when JR was talking about this I had this feeling that teachers were really concerned about their students and would go that extra mile to see that the students were supported and they could succeed. But the issue was that only teachers would not help, if as a school system we needed to support students. It’s true probably that it takes a village to raise a child. During the pandemic JR recorded videos and put them on YouTube™ for the kids to watch, contacted different people to be guest speakers in their class every week, and even managed to take the students on a field trip. What I heard from this is that teachers do not give up easily.

Never Experienced a Pandemic

The teachers mentioned that they felt so unsure about everything because they had not experienced a pandemic before. Neither were they initially prepared to understand the extremity of the situation. VS stated:

When I first heard about COVID-19, I remember thinking it was just going to be a passing phase or I thought it was going to be just a phase. Kind of like with what we were dealing with when we had other types of excuse me, scares like with SARS with Mad Cow Disease, what was the other ones? The bird, the bird flu, but yes, so I thought it was gonna be just like one of those types of things because I've never experienced anything quite like the pandemic with COVID-19 before so I've never really had any any
background knowledge on it. So, I was just assuming it was going to be something that's that we're going to have to just deal with and then you know, just move on quickly. I thought it would be a very quick situation. I didn’t think it would have lingered as long so I was just expecting it to be something that I'll just have to deal with with the kids and just kind of just move on.

SD also thought similarly and stated to me that it was probably a passing phase and had no idea that it would last for more than two years. Another teacher, JS, mentioned that they remembered clearly that they were on a plane to Boston when they first heard about the pandemic. What ensued was pure chaos. Is one supposed to go home if they had sniffles? Were they to report they weren't wearing masks on the plane? How would one know if they contacted COVID-19? Were there any protocols or sanitization rules to be followed? They were not doing anything because they did not know what to do. The helplessness in their voice came out so lucidly.

Never having experienced a pandemic before, some schools did not have proper cleaning and sanitization procedures in place. JS told me that they were thinking about the cleaning procedures for the keyboards. Because many parents did not want their children to touch sanitization stuff, JR wanted the students to use their personal devices. But that did not work out because students did not want to take their personal devices to school. So, the teachers had to wipe down everything after the students used them. JS wanted to buy new mice and keyboards because theirs were old and had gross buildup that was difficult to clean. If any student did bring their own device to class they had to figure out how to connect the keyboards to their devices and how to update the software they were using. These were new problems that neither the teachers nor the students were prepared for.

There was still the question of easing students’ fears about the pandemic. Teachers had to tell their students that they would all get through it together and to focus on other stuff. There was a particular student for whom talking about the pandemic was very triggering. There was also the issue of some student certifications not being available online and the teachers were not sure if they had to teach that curriculum or not. These certifications were separate from their regular curriculum and had a different curriculum. So, if a student wanted to take the certification test, they would study that particular curriculum, take the test and if they passed would receive a certification that they could put on their resume. So, if these certification tests were not available during a certain semester, teachers did not have to allocate time to teach the certification curriculum. That way teachers would have the freedom of including other things they thought critical for students to know about and change the curriculum.

Like SD, some teachers felt really helpless.

There was nothing much to be done. So, sitting at home, taking precautions and taking care of their family and taking care of themselves, spreading awareness about the disease among their relatives, friends, and everyone else was the main motto of the day. So, once we started classes online, news started pouring in about people dying all over the world. So, it was a very difficult situation for everyone in the education community.

**School Closure was the Main Source of Panic**

Once teachers heard about school closures they felt a lot of uncertainty and feared for what was going to happen. How deadly was COVID-19 with people dying left and right? They felt emotions such as, “How are we going to fix this as a nation or how are we going to come
back?” and “How are my kids going to be, how is my family going to be when we start quarantine or are in lockdown?” It was very overwhelming at the beginning. VS said,

My feelings after I found about school closing as I was probably feeling very unsure. Very scared, and I’m some I would even say it's sometimes insecure, because I wasn't sure how I was going to to get my teaching them.

CS felt a lot of trepidation having not taught online before. They knew it would be an overwhelming task to develop a skill set for teaching online but they were up for the challenge. They and other colleagues had the right kind of attitude to face a calamity of this magnitude. They supported each other but that is not to say that the beginning was easy.

From what I heard, words like fear, insecurity, unsureness, nervousness were flowing out and I could gauge what unplanned and unknown situations the teachers must have gone through, knowing that they were responsible for figuring out how to keep instructing the students, keep them emotionally stable, and support them in their many needs.

**Worrying About Students and Their Home Situations**

In JS’ school there were groups of teachers visiting students’ houses and delivering pizzas, saying, “Hey, could you come back to school?” People really did try. JS felt it was harder to work from home for a lot of people. For example, they had a really good student who just had a lot of anxiety and could not perform well at all and had other students who had to babysit their siblings. When these students were engaged in their online classes, as JS said, “They just need someone by their side saying, hey, stop playing games get to this, you know.” There were very few success stories the teachers could share about connecting to students and their families.

School administrators figured out in the spring of 2020, when they first went on quarantine, about issues with internet access and devices and knew they could not count on all the students having stable internet or high bandwidth connections. The students always had devices, so there was no issue there, but some kids lost their chargers or devices. By the fall of 2020 everybody had internet access and computers.

**Learning Resources**

VS mentioned that they were able to reach out to the students and provide them with physical textbooks, but the problem was grading their assignments and returning them on time. They said,

A lot of them didn't know how to scan or didn't have a scanner, or you know, and I couldn't collect them and then grade them and return them to them like I would in in the traditional classroom that brick and mortar classroom.

The big thing was that they were not able to look at students’ work in a reasonable amount of time to determine if they understood a concept. Gradually, as technology became more available and they started to understand more of the predicament that they were in, technology was used more frequently, to send comments to the teacher through a chat box or to provide answers to homework problems. If the students could get the answer, VS was satisfied that students were able to grasp the content. The big problem was if a student got the answer wrong, VS would not necessarily know why they got it wrong. They had to follow up with the student and that became a headache, going back and forth until the issue was resolved. Two learning resources VS used are shown in Figures 2 and 3, and are examples of resources that could be used for both online and offline students.
**Figure 5**

*Boxing Baseballs*

**Summary**

Students learn about a business owner who needs to decide how he will box 24 baseballs to ship to customers. After introducing the problem, the teacher sends students to work with partners to find all possible configurations. Near the end of the session, the class reconvenes to share a few of the strategies they’ve used to create as many different configurations of boxes as possible. Finally, the teacher assigns the Multiplication Connections Home Connection.

**Skills & Concepts**

- Find all factor pairs for a whole number between 1 and 100 (4.OA.4)
- Write numerical expressions with parentheses (5.OA.1)
- Write a simple expression to record calculations with numbers, and interpret numerical expressions without evaluating them (5.OA.2)
- Demonstrate an understanding that a solid figure that can be packed without gaps or overlaps by $n$ unit cubes has a volume of $n^3$ cubic units (5.MD.3b)
- Make sense of problems and persevere in solving them (5.MP.1)
- Look for and express regularity in repeated reasoning (5.MP.8)

**Materials**

<table>
<thead>
<tr>
<th>Problems &amp; Investigations</th>
<th>Kit Materials</th>
<th>Classroom Materials</th>
</tr>
</thead>
<tbody>
<tr>
<td>TM T10 Boxing Baseballs</td>
<td>Omniflex cubes, class set (see Preparation)</td>
<td>12&quot; x 18&quot; sheets of paper (half-class set; newsprint is fine)</td>
</tr>
<tr>
<td>TM T11 More About Brad’s Baseballs</td>
<td>Word Resource Cards: dimension, rectangular prism</td>
<td>student math journals</td>
</tr>
<tr>
<td></td>
<td>a piece of copy paper to mask portions of the teacher master</td>
<td></td>
</tr>
</tbody>
</table>

**Home Connection**

HC 3-4

Multiplication Connections

**Daily Practice**

SB 5

Facts & Boxes

**Preparation**

Prepare the Omniflex cubes (2,000 in all) for easy access and reasonably equitable distribution. If you have a class of 30, each student pair should get about 130 cubes, or enough to build about five different rectangular prisms with a volume of 24 cubes before some have to be taken apart to make others.

**Note:** From VS’ lesson plans
Figure 6

Mathematical Background

In this session, students are challenged to figure out all of the different ways they can arrange 24 cubes in the form of a rectangular prism. The problem involves a business owner who needs to figure out how to package groups of 24 baseballs, each of which is contained in a small cubic box, so that they can be shipped in a single, large box. He can arrange them in 1 layer of 24, 2 layers of 12, 3 layers of 8, and so on. The layers can be arranged in rectangular formations with dimensions that are factors of the total number of cubes in each layer. (See chart below.)

Students will conduct their initial exploration of the problem today and will return to it in Session 5 and in the following module. Sometime in Session 5, you’ll need to press them to keep track of their work in a systematic way so that they can be certain they are identifying all of the possible arrangements of 24 cubes. Essentially, the problem requires that students use what they understand about factoring to identify the dimensions of all possible rectangular prisms with a volume of 24 cubes. By emphasizing the dimensions of each layer and the number of equal layers, we are moving students toward the formulas for calculating the volume of a rectangular prism ($V = l \times w \times h$ or $V = b \times h$), which they will address more explicitly later in the year.

<table>
<thead>
<tr>
<th>Dimensions of Layers (Base)</th>
<th>Number of Layers (Height)</th>
<th>Expressions (Base) \times (Height)</th>
</tr>
</thead>
<tbody>
<tr>
<td>24 cubes per layer</td>
<td>1 layer</td>
<td>$(24 \times 1) \times (1 \times 24)$</td>
</tr>
<tr>
<td>$12 \times 2$</td>
<td></td>
<td>$(12 \times 2) \times (2 \times 12)$</td>
</tr>
<tr>
<td>$8 \times 3$</td>
<td></td>
<td>$(8 \times 3) \times (3 \times 8)$</td>
</tr>
<tr>
<td>$6 \times 4$</td>
<td></td>
<td>$(6 \times 4) \times (4 \times 6)$</td>
</tr>
<tr>
<td><strong>12 cubes per layer</strong></td>
<td><strong>2 layers</strong></td>
<td>$12 \times 2$</td>
</tr>
<tr>
<td>$6 \times 2$</td>
<td>$2 \times (2 \times 6)$</td>
<td>$(6 \times 2) \times (2 \times 6)$</td>
</tr>
<tr>
<td>$4 \times 3$</td>
<td></td>
<td>$(4 \times 3) \times (3 \times 4)$</td>
</tr>
<tr>
<td><strong>8 cubes per layer</strong></td>
<td><strong>3 layers</strong></td>
<td>$8 \times 3$</td>
</tr>
<tr>
<td>$4 \times 2$</td>
<td></td>
<td>$(4 \times 2) \times (2 \times 4)$</td>
</tr>
<tr>
<td><strong>6 cubes per layer</strong></td>
<td><strong>4 layers</strong></td>
<td>$6 \times 2$</td>
</tr>
<tr>
<td>$3 \times 2$</td>
<td></td>
<td>$(3 \times 3) \times (3 \times 3)$</td>
</tr>
<tr>
<td><strong>4 cubes per layer</strong></td>
<td><strong>6 layers</strong></td>
<td>$4 \times 4$</td>
</tr>
<tr>
<td>$2 \times 2$</td>
<td></td>
<td>$(2 \times 2) \times (2 \times 2)$</td>
</tr>
<tr>
<td><strong>3 cubes per layer</strong></td>
<td><strong>8 layers</strong></td>
<td>$3 \times 3$</td>
</tr>
<tr>
<td>$2 \times 2$</td>
<td></td>
<td>$(2 \times 2) \times (2 \times 2)$</td>
</tr>
<tr>
<td><strong>2 cubes per layer</strong></td>
<td><strong>12 layers</strong></td>
<td>$2 \times 2$</td>
</tr>
<tr>
<td>$1 \times 2$</td>
<td></td>
<td>$(1 \times 2) \times (1 \times 2)$</td>
</tr>
<tr>
<td><strong>1 cube per layer</strong></td>
<td><strong>24 layers</strong></td>
<td>$1 \times 24$</td>
</tr>
</tbody>
</table>

The table at left shows 16 distinct arrangements of 24 cubes because it treats rotations of the same cube differently. For example, 24 layers with 1 cube in each layer (a tower of 24 single cubes) is treated as a different arrangement than 1 layer with 24 cubes in it (a row of 24 single cubes lying flat). These rectangular prisms are congruent, and students might discuss that if not, that is fine, too.

Note: From VS’ lesson plans
Learning New Technologies

When teachers began teaching online during the COVID-19 pandemic, one of the major challenges that all my interview participants talked about was learning new technologies. All of my participants had prior experience with teaching with technology, but that was different from teaching through technology. They had to learn to use videoconferencing platforms like Zoom™, Google Classrooms™ and Microsoft Teams™ or using online whiteboards. So, their learning curve was steep and they either used Youtube™ to learn these or sometimes took part in PD sessions that their schools offered.

VS said,

How was I going to start teaching the students I wasn't familiar with with doing online teaching. It wasn't something that I had been prepared with with my master's program. It wasn't something that I was willing. What really willing to willing to do because it's just not a part of, of what I had been taught, but it's something that I had to do. And I was going to do that for the kids, if that makes sense.

Although teachers felt hesitant about learning new technologies, they were ready to do it for the sake of their students. Such emotions should be amplified to understand exactly how far teachers are willing to go for the betterment of their students.

I didn't feel good, because I knew, you know, but online teaching has been around for a while, and I hadn't seen anything about how to do it well, so all of my stuff was really doable at home, the students could do it. But the teaching the connecting part of teaching wasn't good, said JS.

They took an online class in the summer of 2020 about how to teach online classes but did not find it helpful. It was a new platform for them.

They used Microsoft Teams™ and decided that the whole school would use it. So they had used a lot of online content provider kind of things. So putting assignments online and that kind of thing. I've done that for a long time. That wasn't that wasn't a problem for me, but like you said that the actual teachings through that was really, really hard. So a lot of the information about online schools is asynchronous. And so we weren't doing that we were doing teaching through zoom, which really, there wasn't a lot of information about. So from the online teaching course that I took, I learned a lot about, well, it's all about connecting. And that's not I don't, it's, it was really hard for me to do online really hard. And then especially when they they didn't even have their screens on and, you know, it's like, you couldn't even require that they have their screens on just maybe their internet isn't good enough. Or maybe they've got five other siblings in the room trying to do school at the same time. So that was the hardest part. And, you know, it was like the most important part, and I really couldn't figure out how to how to bridge that gap. So I ended up connecting really well with maybe a third of the class, and then the rest of the class, you're just hoping that they're there with you. But it was really hard to tell…'

CS reported that the tech team of the school was very supportive in helping teachers learn programs such as Skype™, Microsoft Teams™, and Zoom™. Zoom™ was popular in classrooms and they had to learn how to invite guest speakers to these online platforms. The school used a good finance curriculum from Ramsay classroom.com™, the Dave Ramsey program for financial algebra and the personal finance class. It is also used for the innovative combined traffic safety education and financial education class. These programs are expensive but very useful for students.
Teaching Online

CS clearly stated that teaching online is difficult because of the missing interpersonal component and inferior communication. If the teacher relied on interpersonal contact but could not see the body language of the students or how they reacted, the teacher had to judge a lot from the tone of the students’ voices. Because teaching is so interpersonal it is difficult to replicate that in an online environment. Sometimes the names of the students were displayed in Zoom™, but when called on the students were not there. The schools worked hard to avoid discrimination by providing internet access and devices to students without them. CS said that their school was trying to be equitable and made sure that even students from a low socioeconomic background had their home internet working. They also shipped food to the students who qualified for free and reduced lunch.

The teachers were trying to be emotionally responsive but students did not reciprocate. The teachers realized that there were students who needed more support than others and teaching online also made that difficult. CS said,

'It's not only do you have to be able to communicate, but you have to be able to know that some of those kids out there are going to need more support because they don't have some of the things that some of the other kids have. So, the school district wanted to level the playing field and they get really good job of that. So so that yeah, so that emotionally it was very difficult for me.'

For JS, their school had a mix of synchronous and asynchronous instruction from the beginning of the school closure. In the mornings they had synchronous class or guest speakers, in the afternoons, they were asynchronous for different types of extra work or assignment time. They had a Zoom room specifically for students to use if they needed help, but after about two months no students were coming in. Other teachers agreed that they probably could not expect students to do anything online in the afternoons. JS tried to engage students in the Zoom™ room by assigning group work where students could choose their own partners and work together in a breakout room. There was no fixed project that all students did in groups. They did some blogging and some students provided peer feedback.

Before the pandemic became very serious in the United States, JR already knew what it was going to look like based on news from their relatives in Spain and Italy. Anticipating going online, the state board of education contacted them and another teacher to rewrite the state Spanish curriculum standards, specifically for teaching online during the COVID-19 pandemic. JR and their colleagues designed the standards in a way that schools could function with health and safety measures, whether in a hybrid or totally online environment. JR was responsible for the hybrid part, possibly because JR had completed their college degrees all online and applied similar online learning principles for the standards. When the district rolled out the plan for going online, however, JR found that they had chosen the worst format of all. They did not understand why the district made use of their expertise if they would do it all wrong. JR had suggested one-to-one online sessions with each students and then asynchronous work. This would help them to pay individual attention to each student. However, when the school district rolled out the plans for online teaching, it said there would be synchronous classes so there would not be any time allocated for individual student session with the teacher unless any student requested it.

The district decided to freeze the grades for all the students, so students saw no point in doing any work. Following that was a mandatory summer school, but the next year no students attended the online summer school because it was optional. There were no repercussions when
students put in no effort. JR said that perhaps parents thought that schools were like a daycare center where children go when parents are at work. I could imagine the frustration when teachers prepared to move everything online, thinking about what would engage the kids, and then the students did no work.

School Administration

JR found an interesting website for their students and talked to their school administrators because had to have a special permission from the district. JR filled out the forms and was in contact with the company, but the school administration turned down the request. JR found another program for the students and again requested permission. One administrator said that if the program was good, JR could use it, but later the administration no. These are a few of the examples of how the school administration was unsupportive of the teachers. Another example from JR’s experience was when they received a $250 grant to buy board games, so they placed an order. But the paperwork was so difficult that the administration told them that they would have to pay the bill and be reimbursed in two or three months. JR mentioned to the person that gave them the grant, that JR, themselves, had already spent this like $600 for board games and other class equipment, so they could not afford to pay any more. Fortunately, they were able to buy a claw machine for the class that rewarded students when they grabbed something.

Springing into Action, Each in Their Own Way

Once teachers recognized the fact that COVID-19 would be around for a long time, they started to think about how to make their online remote teaching more connectable to the students. Most of the teachers that I spoke to reorganized the curriculum in some way to suit the online teaching and learning format. Most mentioned that their teacher training did not address different learning formats, so the redesign of the learning and instructional resources was commendable.

Redesigning Curriculum

CS said they remembered thinking that the current curriculum could in no way be covered online they were nervous about what to do in that case. They thought, “Wow, a kid's not going to get that unit” in an online format. So they prioritized some units over others, such as personal finance, one of the most important units. Then CS asked the students what they would like to learn, assuming that if the students had a personal interest in a topic they would try to engage themselves. The class said they wanted to study investment and retirement. They were not too interested in insurance, but CS put in a small unit of insurance, nevertheless, to make sure that the students were not missing out on an important topic.

To redesign the curriculum in this manner required changes to the assessments and grading, which took a lot of time and energy. CS had to redesign the assessment so students could take different tests. To build rapport with the students, CS used five-minute surveys to see what the kids wanted to learn and then they redesigned the content. The students understood that CS cared for them and had a good rapport with them. They mentioned one incident:

I think I built some pretty good rapport with this one girl on my personal finance class and my internet went out. I mean, it was too windy one day out where I live in and I live quite away from the school. And my internet went out Oh, no, right in the middle of class. And I picked up about 10 or 15 minutes later in there was a girl in my class. What a blessing she was she actually took the discussion questions and ran with it, and she started to teach. She started teaching the class and And so that led me to believe that I really had built enough rapport that these kids really did want to learn and she was a real
leader and she ended up getting business student of the year. She had a lot of business classes and I think that helped her also get into the University of Washington where she's going to try to become a dental student. So that that kind of thing, you know.

VS was unsure at the beginning about how the online learning would work. They had never been in that kind of situation and, in their own words, it was an “undiscovered territory” for them. Before teaching online, they first figured out the situation about internet access and personal devices for the students at their homes. If a student did not have these, they would arrange for a bunch of handouts or packets. VS was a veteran teacher with 13 years of experience behind them, so it was just a matter of learning the technology and understanding how the students would respond to it. VS noted that if they were to go back and redo it all they probably would include a lot more interactive games in their classes. They had used Kahoot™ for their classroom quizzes and thought the students enjoyed that, they reorganized their content in a way that would have more interactivity for the students. This also gave them an opportunity to provide instant feedback to the students.

VS had some students who were offline and felt that there was a big difference. Between coming up with a bunch of handouts versus me actually teaching or using Khan Academy or any any type of online resource so there, there was that big divide. So that's what I would work on first. The second thing was kind of getting feedback from the students because that seemed to be well if you have a good rapport with your students that they're going to, they're going to be honest with you on whether or not they're learning the content, and whether or not they're engaged. Test scores of the students would show how they were doing in class academically, but VS wanted to know just CS, what they enjoyed better. Was it Khan Academy™ or BrainPOP™? For them student’s engagement and interaction was a big part of learning.

JS mentioned that in the online class they took about teaching online, they learned a lot about connecting to the students and why that was important. At the beginning of the pandemic when online teaching had just started, all the students were given “A” grades. The assignments were already online but JS thought that they had to record the demos so that students could look them up anytime and also if they were absent. So, they put out a lot of assignments for the students, but the problem was that the students’ devices did not have the software from their lab. They then had to change the curriculum completely, aligning it with what the students would be able to do. JS said,

And then that was the whole issue of the, the tech part, we just didn't know like, will they be able to remotely log into the computers in my lab? Or will they have to use the programs on their laptops and will they, install the programs? And it was, it was very crazy.

On top of this, the communication with the district was not clear. If there were students who were absent for a long period of time they needed to think about how to make it up. If the students could not access the mandatory software at home, what would they do? So, most of the students were not completing the assignments and JS was still making the videos. With the tech help from school, it turned out the students were able to access some of the software from the lab, so JS had to again change the lesson plans they had made, keeping in mind that students would not have access to all of the software. Fortunately, the learning objectives were the same and they could record new videos with the software.
The district developed a different focus for what they wanted in the lesson plans at the beginning of the COVID-19 pandemic, but later cut it down to make it more manageable. While recording their videos, JS mostly focused on how to record what they were doing on the screen and how to write the directions. During Zoom sessions they had to keep an eye on the students to see whether they were doing worksheets or working on projects and they tried a mix of activities so students would not get bored. Making changes to lesson plans when one is teaching physically can be done instantaneously but when teaching online those changes need to be done ahead of time and posted online early.

In their school they had statewide exams for student certifications that appear on a student’s diploma. Usually students do projects the whole year and then, at the end of the year, take the exams and if they passed they would get their certificates. JS clearly stated that it was not one of their favorite parts to teach, but they did it. In 2020-21, however, that certification was not available online and so they did not have to teach that part of the curriculum. They thought, in a way, that was good and they could teach more of what students preferred. They asked their students what they wanted, such as guest speakers or hands-on projects. An example was the bridge project, which was not a huge success but the students enjoyed it. They met with the students to test the bridge designs.

So one at a time, they could come and it was outside, and it was really, really cold and yucky. But they could come and break their bridges. And it was a total failure, because the students, you know, seeing it over zoom, seeing what the testing apparatus looked like, and actually being there with it and building your bridge and knowing okay, this is how long it has to be this is where this the weight has to hang, you know, is completely different. So it turned out badly, but the kids at least they liked it, you know, it's like, okay, you tried now, you know, in the future, you'll understand that span means the width of the river, not the width of the bridge. So but yeah, yeah, so I learned a lot about, I don't know how I can do that much better, because it's just it doesn't really seem like reality.

When when you're on Zoom™, you know, the kids were just, okay. Good enough.

Before the pandemic started, JR had their own Youtube™ site that was still up and running, so they already had a set structure for their classes. When there was need for a recertification they had to change things, such as reorganizing some content, cutting out parts, or including something else. Generally, when each year their subject area or grade level changed, they had to change their curriculum anyway, so they were used to it.

SD said that since most of their learning resources were already online they did not have to change their curriculum much. During March 2020 they had already set a structure and followed that, using recorded videos, digital whiteboards, and webinars that the students indeed loved to attend. Some of the examples of learning resources JS changed can be seen in Figures 4 and 5.
### Learning Targets:
I can explain the difference between bitmap and raster graphics.
I can produce 2D Vector Graphics.
I can cut, weed, and apply vinyl graphics.
I can share my designs with my peers.

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
</table>
| **1** | Watch these videos  
**Click Here** and complete/watch steps 1-3 of the tutorial. |
| **2** | Explore Graphics  
**Kahoot 2** |
| **3** | Analyze your Art  
**Check your file** then Save As EPS and upload it below for cutting. |
4 Cutting, Weeding, and Applying
Teya's cutting video
cut and apply your sticker

5 Turn in
Upload a picture of your applied vinyl logo. Briefly explain raster and vector graphics and why to use each type. Explain "resolution dependent" vs. "resolution independent".

6 Share
Upload a picture your applied vinyl to our blog.
Check Out Your Peers' Work!

Respond to a few classmates. Remember to follow the example response video and Response Criteria:

- Be kind and empathetic.
- Listen before thinking of a response.
- Listen again to respond.
- **T** is it true?
- **H** is it helpful?
- **I** is it inspiring?
- **N** is it necessary?
- **K** is it kind?

*Note:* From JS’ lesson plans

**Figure 8**

*Affordable Housing*

**e2-Affordable Green Housing**

I love this episode it’s all about cool places in New York and interesting down to earth designs for communities.

Engineering Education

Standard 9.4: Understands the steps involved in designing construction projects (e.g., planning, generating layouts, developing drawings with measurements and details of construction considering constraints, selecting materials).

Standard 14.4: Understands how societal interests, economics, ergonomics, and environmental considerations influence a solution.
Standard 17.6: Understands tradeoffs among characteristics such as safety, function, cost, ease of operation, quality of post-purchase support, and environmental impact when selecting systems for specific purposes.

Technology

Standard 3.3: Knows that alternatives, risks, costs, and benefits must be considered when deciding on proposals to introduce new technologies or to curtail existing ones (e.g., Are there alternative ways to achieve the same ends? Who benefits and who suffers? What are the financial and social costs and who bears them? How serious are the risks and who is in jeopardy? What resources will be needed and where will they come from?)

Standard 4.6: Knows that a design involves different design factors (e.g., ergonomics, maintenance and repair, environmental concerns) and design principles (e.g., flexibility, proportion, function).

Standard 6.8: Knows different requirements for structural design (e.g., strength, maintenance, appearance) and that these structures require maintenance.

1 Previewing Questions
Answer or respond to a peer’s answer about one or more of the questions below on the Teams General Post

1. What do you think of when you hear the term affordable housing? What images come to mind of both the buildings and their tenants?
2. What makes a neighborhood a community? List some of the elements in your opinion that are essential to a community.
3. Do you live in an area/community that is mixed-income or level income? Do you think much about it? If you experienced the opposite, how do you think it would influence you?
4. What are some places within walking distance of your home (e.g., stores, parks, theaters, community centers)? What are some places you would like to have and not have within walking distance of your home? Why?
5. Do you learn more when you talk to a person that is more or less like you? What about when you visit a place that is more or less like your hometown? Why?

Note: From JS’ lesson plans

Reaching Out to Students in Times of Need

While the learning took place online, the tradeoff was that it just took longer. In CS’ case, the school superintendent understood the issue and said, “Look, it is going to take a lot longer. And so we understand that you’re not going to hit all the learning targets that you had wanted to, but we need to be able to help these kids survive this, as well.” These thoughts about the students’ wellbeing were at the forefront of many teachers’ and administrators’ agenda during the COVID-19 pandemic. They tried to connect emotionally with the students. Many times teachers would go when they delivered textbooks or deliver lunches and connect with a family or give the students something they wanted from their homeroom store. The idea was to make them comfortable.
CS mentioned visiting some students’ houses in the school district where they got some Domino's Pizza scratch cards and the teachers would take them and sit down with the parents and chat with them. That really gave them an opportunity to understand the family situation better. CS said they could not reach all of their homeroom classes, but they did quite a few of them, and they understood a lot more about their current situation. But it also was very emotionally challenging and it really helped them connect with the kids.

**Online Teaching Strategies**

When they started teaching online, VS said that teaching via Zoom™ was very popular. Many teachers, public schools, and private schools used Google Classrooms™, as well. The challenging part was how to make the content engaging when meeting on an online platform. Teachers said,

> And that was what I was worried about the most was I wasn't sure how I was going to reach the students in terms of like keeping their attention where they because I could all I was seeing was a screen and sometimes I wouldn't even see their faces because a lot of times they wouldn't put their faces on on the Zoom™ link or this or that so I didn't know if they're even paying attention.

In a physical classroom the teacher can gauge the student’s body language but on Zoom™ with the cameras off it was not possible. To engage students they picked engaging YouTube™ videos or used Khan Academy™ to teach concepts. They would sometimes record themselves solving a problem or explaining a concept on a whiteboard. For lower grade students they used videos like BrainPOP and videos that would help to break down concepts before talking about them in class. VS gave an example:

> Khan Academy™ was another one because especially with like math concepts, they could show more than one way to solve division problem. Exponents or whatever just depending on whatever topic we were teaching, or I was teaching. So that's what I did.

JR already knew from their family in Spain and Italy what was happening with COVID-19 and, therefore, had a little more preparation time. They were not new to technology and moving their resources online was not challenging. Their students were using a lot of Google Docs™ and Google Slides™ so the transition was not difficult for them, either. The key challenge was to make the kids show up to their online classes and pay attention. JR started using a program called Neo LMS™ that included a gamification component to engage the students. They had earlier planned to replicate the physical classes online where students watched videos and then would have one-to-one sessions with JR and keep in touch. However, the district mandated the use of Google Suites™ so the individual element was missing. Instead of short periods with each student, they had to stay in class for whenever a student might show up, potentially for six to eight hours.

There were also teacher meetings and lesson planning, so they had very little time left for actual teaching, their primary job. The one-on-one session could be used to give specific attention to each student every day but that was the tradeoff with their time. JR felt confident, though, that they had prepared their students well enough that if the teacher was absent, even without a substitute teacher the students would know what they were supposed to do that day.

For SD, teaching online was a wonderful and exciting experience. It was like they got an opportunity to implement the things they learned about online teaching in a practical setting. They felt that online teaching had become so popular that there might be a time when it would completely eradicate traditional teaching. The school initially supported the teachers in learning
about the online platforms and then it was left to the teachers to keep themselves updated. SD also felt that Youtube™ played a big role in helping people learn new technologies, such as how to use a whiteboard in a video. SD mentioned,

So, once you're using a teaching procedure, there are a couple of ways in which you can keep data you can put your camera in front of a whiteboard, you have which is a very old method. Okay, which is a very old method but this you have many new technologies right? Like you can share or share your screen and that there are some digital whiteboards which are available, both paid as well as free boards. So you can share whiteboard into other students can see what you're doing and writing just this like the Blackboard or the whiteboard that he was not interested, same type of feeling. But there are some ways in which you have the whiteboard in back of you and you can show your face also so that because sometimes students wants the reaction the facial expression on the teachers as well, because that also helps them to understand a lot of things. So this was very interesting for me because the other teachers that I have spoken to have said that when students keep their cameras off they cannot see the students’ reaction.

But SD mentioned that the students also needed to see the teacher and their body language. SD used a lot of webinars to engage students and felt that having guest speakers in webinars really connected the students to the outer world and engaged them in the content. These webinars were both intra-school and inter-school so students could meet students in other schools.

JS mentioned that once they were comfortable with the online platforms (e.g., Zoom) they ventured on to invite guest speakers to their online sessions and noticed that the students enjoyed this a lot. They also had volunteers from British Petroleum™ (BP) demonstrate some activities in videos and, though it was not as engaging as the students doing it themselves, it still held their attention. JS also kept their videos organized for any student to view them as they needed.

**Engaging Students**

Teachers wanted to engage the students in their online classes and JS understood that students were bored with worksheets and Zoom™ discussions and would not show up. JS was already connected to British Petroleum™ (BP) volunteers who would conduct STEM activities every year for their students and there were local organizations who would come to class coding and debugging activities. Unfortunately, these projects would not work and turned into videos that the volunteers shot at their homes that the students watched, which was not as motivating. Ironically the students in computer courses were burned out from being on the computer and Zoom™ all the time.

The teachers had their lesson plans organized and their videos recorded so that students who were absent from classes could view them later. Most teachers were very organized. For example, JS substituted in another teacher’s class and could not find the sub notes. The teacher had mentioned to JS that the students know how to find what they were working on. The students initially said they did not, but a student said the notes were on OneNote™, and everything was there, the slideshow and other resources. JR here mentioned that they relied on slideshows and kept them organized for the new lessons they were creating.

The volunteers from BP™ and two graduate students were available and kids could meet with them in their asynchronous times to help with career and technical education work. However, the BP volunteers said at a district meeting that it was frustrating because they did not
The welding and other hands-on classes were not a huge success. Here is what JS had to say after talking to students:

And so I was talking to a student yesterday who's in our aerospace program, and he's, he's like, in heaven, this class is so cool, they have all of these amazing tools. And it leads like, right to a career and, and he goes, there's only 15 of us in the class, because last year, it was so awful, because they weren't in the lab. So they couldn't learn anything, they couldn't do anything. You know, they they watched videos about other people doing stuff, but they couldn't figure out how to make the class work. And so not very many people signed up for it this year, because it just got a bad rap.

The same thing happened in the robotics courses. Usually with robotics the students have a team working on a robot, but they could not do so on Zoom so the school ended up buying each student a robot kit. It was still hard for the students to do it all by themselves and to admit on a Zoom meeting that they did not understand how the drive train worked, for example. As a result, it was not as much fun as when the students were in a lab and everyone else could see what everyone else is doing. There was so much more synergy there that could not be replicated on Zoom.

VS was worried about engaging the students because on Zoom they could not see the students, because the students would typically have their cameras and microphones off. As a teacher, they wanted to put the students at ease and make them feel secure. If they had that security they would be able to learn, but if they were insecure or unsure they could not focus on whatever concept was being taught. So, VS had to put on a brave face many times and say, “Okay, well even though we're not exactly sure how this is going to go or what next week's gonna look like, this is what today looks like. And this is what I'm going to try to teach you.” They expressed to the students that even though they had doubts and did not know how things would turn out, they would focus on getting past that particular day. They tried to build a sense of classroom community they thought was essential and just moved on each day at a time.

SD tried to use whiteboards to engage students and teach conceptual subjects like math and science because that is what the students were used to. Sometimes they would record themselves standing in front of the whiteboard in the classroom and at other times use a digital one. When online teaching was the only option, teachers had to make it work. Gradually students got used to the online mode and were successful in understanding the curricular topics. This was especially important for the science and mathematics subjects that are a huge challenge to teach because they are conceptual and need to be understood very well.

JR tried to engage students with virtual museum visits, 3D printing, and even a field trip, but teachers need the support of the school administration and the parent community to do this. Regarding student engagement, CS said,

I had to get their attention in the early stages, so I wear different hats. I you know, I wear a Japanese hat that a guard and a rice farmer would use and I and I brought in a Mexican sombrero and I did things just to get their attention and I had to maybe use humor quite a bit, to kind of to kind of get them to be more involved and engaged in learning. And so every once in a while, you know, we just we just take a little break and maybe high place, truth, truth, dare for a game I you know, just to just to help them connect. And so I say,
okay, so and so, you know, to give us two truths and one lie actually, is to choose to lie. That's right. And so everybody had to guess what the lie was. And that made it a little bit more lively.

It helped kids to share some experiences with one another in the class. When CS learned more about each kid, it helped them connect emotionally. Some kids would do the assignments given on Microsoft Teams but just would not show up for class. CS allowed this a couple of times and allowed test retakes if they really did not perform well, but gave them a different test to reduce the possibility of cheating. CS wanted to give every student a chance to succeed and to improve their grades.

So my grading my assessment had to be completely different as well. And so that was a lot of time and energy. To change my assessment to write different tests.

Wins and Losses: Effective and Ineffective Teaching Strategies

A lot of what the teachers were doing by way of teaching strategies was trial and error. Some strategies worked while others failed miserably. And some things worked with some students but not others. It was a huge conundrum for teachers that there was no single manner of successful online teaching. This was not a case of one size fits all. For example, in online math classes some students could adapt well to the use of online whiteboards just like the ones they used in their classrooms, while others could not learn in that manner. Teaching strategies also meant trying to connect to students to know more about who they are, what music they listen to, and the books they are reading.

Teaching Strategies That Worked Well

JS, while teaching on Zoom, used the breakout rooms quite a lot to connect to the students individually. Sometimes students got motivated by this and would say, “Do you want to see my dog?” JS noted:

And so then you can talk one on one, because in the classroom, a lot of your connection is, you know, Hey, what did you do this weekend, but you're not saying it to the whole class, so that they have to present it to everybody. So I did a lot more of just one on one, like, I see, you're really interested in this thing. You know, I thought it was cool that you had this, you know, why did you do this? More of that connecting and, and trying to learn about them to figure out who they were, usually, I'm seeing what books they're reading, what clothes they're wearing, who their friends are at lunch? I mean, you just there's so much more to teaching than just giving them the curriculum.

JS’s winning strategy was connecting to students one-on-one, but there were also cases where students were actually asleep or playing video games during the Zoom™ sessions. JS tried to address this situation by letting the students choose their work group but it was a “win some and a lose some” situation. Students also used apps like Flipgrid™ and Google Jamboard™. Initially there was a good response to the weekly Flipgrid™ assignments where students were watching and commenting on their peers’ videos, but that interest slowly died down and the same happened with Google Jamboards™. Because these were tech classes, students needed something they could discuss and relate to, so JS started a blog about affordable housing for the poor and gave the students interesting videos to watch on this topic. Participating in the discussion was mandatory and this worked wonders because students had a lot of things to say.
JS got the idea from discussions with other teachers. It is important for teachers to be flexible and keep an open mind to understand what might work well with their students.

Note: From JS’ lesson plans

CS mentioned that their strategy was to present themselves to students as another vulnerable human being. That, they thought, would help students relate to them. CS said,

I would just I think mainly trying to engage them at the beginning myself with a with a little bit of information about you know, something that happened to me in my financial life, whether good or bad, and so that they could see that I kind of human that I'm not making all the right moves and and I think they they understood they understood that, that that I'm, I'm human and so on, and I think that that helps, but just the rapport that I built.
VS mentioned that because they taught math, a conceptual subject, they used a whiteboard frequently. Sometimes they used digital whiteboards while at other times they would video record themselves while solving a math problem in front of the physical whiteboard in the classroom. SD, who also taught high school math, mentioned using a lot of whiteboards and supplement it with websites like the Khan Academy™ to help students conceptualize a problem. That helped to show that there were multiple ways to solve problems.

JS also experimented with creating some Youtube™ videos, mostly by trial and error. Initially these were quite long, up to five or six hours, and there were a lot of views at the beginning but they dwindled over time. JS understood that middle school students were interested in video games, so they used gamification strategies and some online board games to motivate and engage with the content. The teachers also used some fun things in class, such as JR’s claw machine.

It's a machine that you put coins on it. They're fake coins. And then you move, and it's like a claw. And it goes down and you grab surprise? We have one, they are really, really engaged. We're doing all of that. And then when I said to administration, can you help me? The answer is no. But also, I found a web page. That was amazing. It's called a Stash 101. And it's like a bank for kids. It's everything is fake, and it's free. But they can have their own account, and they can have jobs in the class like absentee helper, if you're not there, that one person is in charge of that. Then I took that thing to my class that we're working on. But the web page is really cool, because it lets you do everything it pays every month or every week. You can have loans, you can have a market. It's really cool.

JR decided to record a video for the class to discuss to with students what they would do on a particular day, share other video resources, and give students activities to do. They also earmarked some 15-minute periods when students could talk to JR and clarify any doubts. That was the initial plan, to replicate a face-to-face class as much as possible so that the students would have a sense of the old routine. However, when the district went fully online, the 15-minute tutoring component had to be canceled and JR was no longer able to record videos because of time constraints. The online platform did not afford them that time because the children were always in synchronous instruction. JR tried to contact students’ families to let them know what was happening in the online classes, and even tried to connect with them on Facebook™, to no avail.

**Teaching Strategies That Were a Total Wreck**

JR thought that traditional teaching strategies like copying answers or just a plain calculation did not work well unless the students were given the reason behind why they were doing that. VS felt that the most challenging thing was to get the students to put their cameras on. It was difficult to teach to a black screen and just names. They vented,

I knew I as a teacher needed to see their faces because I couldn't gauge that personal connection. I missed that so much being online. That was the the biggest the hardest part for me. So if I couldn't see their faces, I didn't know what they were thinking, what they're not what they're thinking, but I couldn't see. Were they thinking about the problem were they distracted or were they doing something else? And because I couldn't see their faces. I couldn't judge what what they were doing. So I couldn't read their body language. So for me, that was the biggest part. I had the hardest time with that even to even to this day. I think if we haven't I still have a hard time with some students putting their cameras on.
CS felt that their inability to be very nimble with internet access was an obstacle. They often struggled to access information online and they admitted that, I would fumble around if I needed to show a resource it would. It might take me a while to get that up on the screen and screen share until I got really got the screen sharing aspect of that program down whether it be zoom or teams. Here is just an incredible challenge.

And I sort of hate to explain this, but I think it's it's a must. I had a sergeant from the Bellingham Police Department in my traffic safety financial aid class. And it just turned out that my colleague couldn't run it. You know, a guest speaker. He just didn't have enough time and I had a little bit of time in my classes. And keep in mind that he and I teach we teach this class of 55 to 60 kids. So that's a lot of kids anyway. I to be able to, to let them in right at the beginning of the zoom for this guest speaker I let it go. I just let everybody enter that wanted to enter. And it just so happened I had you know, the chief, the chief of the Bellingham police, who was explaining from some questions that students had so I had, how did I do that? I had a Google Doc. And I let the kids write their questions on a Google Doc. And before he was the guest, the guest speaker and by the time that I got there, I put that up on on Teams™. I think that was a Teams one. And so the questions were going well, the officer could see the questions that the kids had written. And the kids asked them personally, and then I had a zoom bomber. This is a kid that's not in my class. And he came into the class and he started yelling obscenities to one of the African American kids in the class and the African American kid’s father said get that kid out of there and I had a really hard time figuring out where he was in that call because there's 55 to 60 kids in that Zoom call. And and he was hammering the girl plus he was hammering the the chief of police and it was just very difficult in three minutes. He did some damage I was able to get him off.

And and so after that situation, I ended up making sure that I invited each kid into they had they had to come in through me. And so anyway, that was one of the things not only that, I experienced that. But there are other faculty on our staff that experienced that as well. And so we all had a faculty meeting that was zoomed. We all had to come in and kind of decide okay, we're gonna all have to invite people into our particular zoom. And so that we had that discretion finally, but, you know, took took us about half a year to figure that one out.

JS was very positive even about teaching strategies that were a wreck simply because the students enjoyed the process. To them, that was crucial. On example was when the students participated in a bridge building activity (Figures 7 and 8).

Like I remember, we did bridge building, and then we were able to the, the only time I got to meet those students was we, we tested the bridges. So one at a time, they could come and it was outside, and it was really, really cold and yucky. But they could come and break their bridges. And it was a total failure, because the students, you know, seeing it over zoom, seeing what the testing apparatus looked like, and actually being there with it and building your bridge and knowing okay, this is how long it has to be this is where this the weight has to hang, you know, is completely different. So it turned out badly, but the kids at least they liked it, you know, it's like, okay, you tried now, you know, in the future, you'll understand that span means the width of the river, not the width of the bridge. So but yeah, yeah, so I learned a lot about, I don't know how I can do that much
better, because it's just it doesn't really seem like reality. When when you're on Zoom, you know, the kids were just, okay. Good enough. And, yeah’.

**Figure 10**
*Bridge Design*

Another example that they gave was:
Yeah, when I'm thinking about it, I'm thinking about the one that we did with BP. So like the, the learning watching their presentations and watching them do the experiments for us, you know that that didn't work well, but then it at least connected the kids, I think enough that they thought that they thought more deeply about it, they could see that these volunteers were really passionate about, like, sustainable design. And so when we, after we did these things that showed how heat transferred and electricity and these kind of
things, those were not, I don't think they went very well, and that the students really learned much, but then many of them really dug into the project, then after that, so the project was design your own sustainable community. And I think they, they went deeper than with that.

Students came up with some pretty weird art. So in my photography, and digital art stuff, they, they did sillier things, I think, then than they've ever done before. There would just be a few of them that, that were really, you know, we used to enter a lot of contests. And we, we did not do so well, with those kinds of things, our FBLA group (Future Business Leaders of America), everything went online, which was kind of easy. So I didn't have to spend like my spring break, you know, watching students. So it was all virtual. And we did well with less, because not very many people participated. So we made it to Nationals for the first year, but not because we were any better or tried any harder, just because there was the lesson.

Working on Zoom was frustrating in courses that required hands-on activities and learning. JS would go into the classroom and cut out things on the latest laser cutter, things that they had designed. It was similar to the bridge project and students really didn't understand how it would work. The logistics were difficult because by the time students asked questions about the activity, JS would already be in the classroom ready to cut it out. It became a long process of going back and forth, asynchronously, like “No, you have to change that line to be red, because that's the part that's cut out and this lets you know.” JS had to do that for almost every student because it didn't really make sense to them on Zoom. It wasn't obvious to the students how to do the laser cutting, so oftentimes they ended up doing it the way they thought that it should be done and it wouldn't work. JS found it depressing, as a teacher, to spend time demonstrating the laser cutting, only to find that students wouldn't even pick up their projects because they hadn't put any work into them. The students would ask, “Is that good enough? What do I have to do?” They worried that the project would not earn them the grade they wanted. As a result, when students were switching to online, teachers switched to different standards based on what the kids were able to make.

The students would repeatedly turn in terrible assignments and had to redo much of their work, asking, “Is this it? Is this it?” It was frustrating for JS when students wanted a good grade but didn't want to put effort into their work. It was a challenge to figure out how to not let the students fail. That was the directive from the district. Teachers could not fail any students; if a student had done anything in the class, teachers had to give them a P (pass) grade. However, this was not enforced consistently throughout the district. Some schools were saying, “Yes, teachers can give students a P for being a black box on Zoom,” even if the students had logged in but were not there. Other schools, such as JS’, said, “No, students have to do the work, but they have all year to do a semester's worth of work.” The teachers had to go back to those assignments to see the assignment’s purpose, how was it graded, and if the student’s work was at a passing level. A lot of frustration about projects and assessments was reflected in their voices. One example of an assignment is given in Figure 9.
While teachers like JS experienced intense frustration, other teachers said students were very understanding of the fact that this was all a trial-and-error process. SD said, “The students were flexible. They also understood the situation, that it was an experimenting time for all of us … and things only went better. … It never went from good to worse. It always went from worse to good.”

**Survival of the Fittest: Current Teaching Strategies**

As schools decided to reopen, teachers had to again reassess their teaching strategies as they would again be moving from teaching online to teaching face-to-face. However, this time it would be different as they had to ease back the students into face-to-face learning, reconnecting with their peers, and continue social distancing. This meant that prior classroom activities like group collaboration had to be reassessed.

**School Reopenings**

Once schools started reopening it was a whole new ballgame. What were the sanitization protocols? Were students supposed to touch sanitizing materials? JS mentioned that,

We had … staff meetings where we got in trouble. One of the secretaries said, ‘Hey, stop telling students to clean things [and] some teachers were saying, ‘Here’s bleach, let’s sanitize everything.’ …at least one of our students got pulled out of school because their
parents were upset that they were touching these cleaning products… so it was like this big thing.

When schools gradually started reopening, teacher had their own strategies for easing the children back to the face-to-face learning environment they had been accustomed to three years earlier. At first JS considered ice breakers but realized they had done too many of those during the online classes. They had videos of the lesson plans and planned on utilizing them, especially for children who would be absent from class. They also started using Kahoot to engage the children. The teachers found it frustrating that the schools had only the face-to-face option and had completely removed the online instruction.

CS said that they went back to face-to-face instruction in September of 2021, but some kids were catching the COVID variant and everyone had to be more vigilant. So such students had to go back to remote learning, because for example, out of the 28 kids in CS’, 16 are absent. The variant was not as dangerous and kids completed their quarantine and returned to class fairly quickly, but because of student quarantines some after school programs were affected. For example, the girls’ wrestling team had to cancel a tournament with other high schools because many team members had contracted the variant. The wrestling team had to go on quarantine and CS had to plan hybrid classes to continue their instruction. When a class had to go hybrid, the teachers benefited from the online programs they had learned previously and for the face-to-face classes they continued to put assignments on Microsoft Teams and students continued to use the personal finance curriculum online.

For JR, just managing the students in a physical environment was challenging. Families had not stayed in touch so it wasn’t possible to talk with them about their children, or students did one thing when they were asked to do something else. The classroom situation was very different from what it was three years earlier. Other teachers shared similar experiences. Students did not want to engage in the curriculum because there were no consequences to not being in school.

JR had been the bilingual teacher for fifth and sixth grades, but began teaching a self-contained sixth grade class because teachers were leaving, resulting in a shortage. JR was teaching everything except special education. The teachers’ contracts for that year precluded teaching remotely, but teachers could work with students online who were absent from in-person classes. The teachers could upload activities on Google Classroom and students could email teachers, but the teachers were not to use the videos of themselves they had uploaded previously. JR uploaded some videos that just told the students what they needed to do. If students had questions, they could send JR an email. Out of 11 students only one emailed regularly. The focus became coordinating what was going on with the kids. Everyone had to wear masks and they had to be vaccinated or be tested every week.

**What Strategies are Working Now?**

JS explained that they had taught an eight-period day, teaching six classes, before the pandemic. When they finished the 2020 school year, they still had the six classes because they had started the year that way. In the fall, knowing it was going to be all online, the schedule changed to four classes per quarter and then switched to the four other classes for the next quarter. It was difficult for the students to sit still and do something when they had 80-minute class periods. Teachers had 25 to 30 students per class, plus a homeroom class. As JS noted,
And then just trying to like, remember, so after you've never met these kids, and you barely see them online, and you haven't seen them for a quarter, and now they're back trying to remember who's who it was. It was very weird.

JS felt the return to the classroom was going okay and was more doable than 80 minutes. The strategy was to just settle down. Empirical studies may focus on strategies, but for a real teacher just setting a routine after two years of chaos can be a lot to handle.

CS planned to put all their assignments on Microsoft Teams and structured everything that way. They even had a lot of their instruction through Teams, though they eventually used Zoom and used Teams only for assignments. CS found that Teams did not work out some of the early bugs in coding, although they did later, which was helpful.

**Online to F2F Strategies**

The most challenging part in this transition was trying to reconnect to the students. JS thought that blogging would still be a big part of instruction, because it worked well online, but it did not work well when students returned to classes. That was a failure and JS thought that students were so burned out with online stuff they did not want more online activities. When they were all online it seemed more like a community of learners, which they would feel in their classroom.

Everyone in the tech industry has tried to become more collaborative and JR wanted more collaboration in the classroom. They wanted to recreate that collaboration from the online class to the classroom, but it was awkward with masks and the crazy student behaviors. That was the biggest thing they were trying to hang on to.

JS mentioned that with the threat of violence they were not allowed to have more than one student outside of the class at a time, and their attention was distracted by the bad behaviors. They felt they lacked skills to deal with student misbehavior, because they never had to teach students to stay in class until the bell rings. They had always just taught, not dealt with classroom behavior such as when students did not clean up after themselves. JS expected that when they were online and connecting with the whole class that it would continue when they began to meet face-to-face. JS made name tents and students wrote their name on the tents and on the inside of the tents the students would write whatever they wanted to tell the teacher each day. And then every day the teacher would read each one of them and responded to them. JS meant for it to be a way to get input from the students about what they wanted to discuss. At first that worked with students but later dwindled off.

In the face-to-face classes at JS’s school, Wednesday was a non-student day so teachers could focus on lesson plans and other communications, and the students were given asynchronous assignments. JS’s courses were very hands-on so those lesson plans were challenging if students had to be home. JS said, “So part of that what I was just thinking about was, we couldn't expect that students even had scissors at home, there was like, no, no supplies. So you had to really think about what projects in my stuff is all hands on, I have, like, vinyl cutter and a laser cutter.” Since they built things in these courses, students needed supplies and it was difficult to organize the teaching. While JS was teaching one group of students, they had to plan for the next group and the project they would do. That meant buying the supplies and keeping them ready so students could pick them up a week before the project started. Parents and students were constantly coming in to pick up their English book or art supplies or the supplies for a project. This was like a cycle, constantly decoding what to do next, getting stuff ready for that, and putting everything in packets.
Unfortunately, there were students who were not connected or interested enough and had to be constantly reminded to come and pick up their stuff. JS said,

So you know, I'd say, okay, you know, 10 of you still haven't picked up your supplies, and we need to start this project on Tuesday. So come and get them and, and then, like I said, there were people checking in, and lots of teachers and counselors and admins were dropping off all of these supplies to the students. So that was pretty cool. And then, you know, sometimes that worked.

Sometimes it was difficult. For example, one student had to go to India and needed to check out a camera. In class they usually shared cameras so there were not enough for individual borrowing. JS had to buy a whole set of cameras for the class, always with the thought that they might not come back to class. The cameras came back the next semester, although some had missing chargers, but the most difficult part was that the instructions for using the cameras were in Japanese so they had to switch the language in the cameras.

**Fallout: Challenges to Teaching**

There are more challenges when teaching online than only the technology not working or having to learn new online software. Let us see what some of the teachers say that is not often reflected in the research literature.

**Bomb Threats**

Teachers try to understand their students’ situation under stressful circumstances. In this new school, this kid had not made any friends and he was lonely. The teachers had even discussed the student who threatened with guns and bombs in JS’ class in their meetings, because teachers have students on their radar. He was a 10th grader and had not yet met the teachers face-to-face and the teachers did not know a lot about his background and other family situation. All of October to December, the teachers were thinking they were making connections with him and then the bomb threats happen.

JS told the principal they thought it was this student and sent the principal the email exchanges the teachers were having about the student that also mentioned some of the other problems he had caused in classes. In the face of all this, the student kept sending the threats, but the police did not know how to catch him doing it.

While talking to JS I could not imagine what they must have gone through. The police were combing the classroom to see if the bomb was left there or not. The first day of the investigation the police found a gun in a kid’s bag. It was an airsoft gun and had nothing to do with all this. Later this kid was found by the police. But JS questioned, “It was really traumatic and just trying to talk to my class about like, how do you come back from that? How you were, you were framed, and you were terrorized? The most of the whole school? And this is all things that I’ve never thought about before.”

JR also experienced similar threats to other students by students. There was one student, who during the whole of the online teaching maybe connected to JR only three times. They sent out messages like, “I am going to kill you.” Because it was digital, JR had evidence of it. When JR talked to the administrators, they said they would talk to the student, but they did not so JR had to. They had a meeting with the family, and they said he was angry with the other student because they misspelled his name. For that he threatened everybody. JR told the family that there would have to be a police investigation and the kid said that he would take a knife and kill the police investigators. Still the school did not take any action. The administrators told JR it was a
minor issue and they could handle the kid. JR also mentioned that when a fourth grader was misbehaving and he was taking the student to the office, the kid actually punched him in the face. The kid was yelling and kicking away. JR had to restrain the kid and just took him to the principal’s office and said they did not want this kid in their class.

My thoughts after hearing all this was that I never hear about these experiences from the literature I read or in any journalistic papers. The teachers need an avenue to get it all out, for people to know about all this. These are terrifying and frightening experiences that they must keep pent up within themselves because no one is willing to listen.

**Media**

More challenges appeared for teachers in form of media disruptions. During online teaching there had been occasions with the “black boxes” on Zoom or Google Classrooms when students logged in but were “invisible,” but that affected only the people in the class. But when students returned to the physical classrooms there was uncouth behavior from the students. For example, JS’s sweatshirt was stolen and there were the “devious licks” of vandalism on TikTok.

**Student Behavior**

JR believed that the students’ behavior when coming back to school had become increasingly notorious because the students could behave badly without repercussions. JS mentioned the same types of behaviors, such as students messing with computers and stealing. There also were no consequences for poor work on assignments; the students didn’t worry they would fail a grade. JR tried to help the students understand the meaning of a school and why they were there.

Why do we have schools, and we say, the school is a place to prepare you for your adult life, say, we have to prepare the kids for the adult life.

For the students’ education to be robust, it needed the support of parents, as well.

JR tried a unique approach to engage students once they returned to class to hold them accountable and make them behave in a responsible manner. Every student would have a different job and be paid in “school money” they could use to buy things from the school store. To be hired, the student had to apply and write a cover letter to JR. If more than one student was applying for the same job there would be an interview where they had to explain why they were applying for the job, what made them the better candidate, and so on. If the students did not do their jobs responsibly for two days, that would be overlooked, but on the third day of this behavior, they would be fired and not get paid. Like in the real world, different jobs had different salaries. The students understood that in the real world they will be fired if they did not perform. JR said, “And I always tell them, the first thing I teach. The second time, I warned them, the third time, they have the consequences.” There were students who were doing great jobs, such as a creative student who was the classroom decorator.

JR believed, like other teachers I spoke to in the course of my study, that student behaviors have significant bearing on the consequences they have to face. JR’s school district did not have any consequences for failing grades, missing assignments, or even obnoxious behavior. For example, one student had not submitted anything the entire year. The school administration said it is not that the students cannot do the assignments, they just chose not to do it. So, it was both that students chose not to do the assignments and the administration chose not to punish the students. So, in both ways the teachers were not being supported and the administration rather
than supporting the teachers, supported the students’ behavior. This response from the administration was disappointing because teachers could not enforce rules.

**Parent Community**

JR, like many other teachers, expected more support from the parent community. In the first year of the school closure, parents were saturated with emails and messages from the schools and teachers. Parents would duly answer. But when the school returned to face-to-face classes, parents would not answer. For example, JR sent information to a family about their child who was not submitting assignments. The family said that their kid complained that he was being forced to talk to everyone. They were supposed to respond to basic questions, like what's your favorite color or book or game? JR told them that this was one of the standards to pass the sixth grade but they did not force the kid to talk and gave him the option of recording a video and submitting it, instead.

The school used Tyler™, a platform for communication, for parent communication and however many messages JR left for parents, no one would respond. Before the pandemic, JR’s efforts have been to engage students. They had a Youtube™ channel with live streaming for students to join - [https://www.youtube.com/watch?v=tDJ3KIOja38](https://www.youtube.com/watch?v=tDJ3KIOja38) and [https://www.youtube.com/channel/UCz7LHduFzQArrYtQ36hQAzg](https://www.youtube.com/channel/UCz7LHduFzQArrYtQ36hQAzg). And that was really hard because it was like a TV show six hour long every day that they had to have content for six hours. So, student engagement has remained an issue of huge magnitude and the pandemic situation has only worsened it. Parents also did not encourage their students to watch this channel or maybe they were too tired to pay attention to what the students were doing at home.

JR wondered how, when both the parents and students were at home during the COVID-19 pandemic, the parents did not notice that the kids were playing all day and not attending their online classes? The parents needed to be more alert. JR understood that parents had a lot going on but they still needed to be vigilant about their own kids.

**Teachers Leaving**

JR thought that in the coming years the school system as a whole would face a huge problem because the good teachers were quitting. They were overworked with no help or support, not paid extra for the extra work they did, and their basic pay was very low. Teachers said, as JR reported, “I will find a new job, even I don't know, as the garbage man, I don't care. Another job. And some other teachers telling the same thing. And the good teachers do. They say, I don't care, I will go to for a week, or I will go to Walmart to work there. I don't care it will be better.” So why did JR go to school every day? Their families had always been in the teaching profession, for one thing, and they went to school for their colleagues and their students. Even though the students said, I hate school,” JR kept trying to engage and educate the students. Occasionally they would get support from the school administrators, such as an administrator what resources were needed for their classes. That was very encouraging and teachers need this support and encouragement to go on.

**Teachers are People, Too**

Teachers have been overworked, especially during the pandemic. This is no news. Their sleep was disturbed, they were under tremendous stress, they did not switch off from technology. The community of parents, students, and school administration have thanked them for all that they did. But were they asked about their wellness? Had they been thought of as human beings
who experience physical and mental tiredness, emotional disbalance, helplessness, loss of professional development, not being able to provide for their family, and so many other things. How they taught during the COVID-19 pandemic was studied, what technologies they used, what worked, and what did not. But were they well?

Doing Well

Doing well means different things to different people. JR felt that just being alive sometimes can mean doing well. They were happy with their job because they were good at it and that also was part of being well, for them. They spent their own money to buy games and other equipment expecting to receive a grant but they were never reimbursed. However, there was a limit to what they could do for their students and they learned not to feel guilty about it. That also helped them to stay well, emotionally, and on a scale of one to ten they rated themselves a five or a six.

SD thought they were doing well by staying at home, although they wondered if they may have become a little lazy. The workload did not decrease; in fact, to prepare study materials and resources for online classes and deliver lectures required more planning. SD rated themselves a seven or an eight on a one to ten scale for wellness. They felt that the support they garnered from the school administration, colleagues, and even students was very important for their wellbeing. Additionally, almost any information about the new online platforms for teaching was available online or on Youtube™ so that felt so helpful to SD if they had to learn any new technology.

VS was very stressed about their job so wellness-wise they rated themselves as a six or seven. They thought that even though they went back to the physical classroom they had to be prepared to go back online at any time.

Um, I had to I have to be prepared to go virtually. So I so that's something that I still have to be conscious of. Even though I'm back in the classroom, with the omicron and the cases rising, I have to be prepared to go virtually at any time. So I have to have like a backup plan and I had to be ready to go. So it's not something that I can when I had when we have a pandemic the school took off a week we had a week to prepare. So we were able to get lesson plans started to get the devices in hands and things of that sort. Now if we go virtual, it's going to happen the day of and I have to pull out my virtual lesson plans as they go. So like everything will be on for example, like Google Classroom. On Google Docs, I have to have that prepared. So that takes some extra time. Especially if I'm moving from different subject matter. I have to have classroom plans and then I have to have although a lot of those are similar in terms of like what videos we might watch or the concept might be it. It takes an extra step to transfer it from my classroom lesson plans to the virtual lesson plans.

JS found everything quite challenging. One good thing was that they received a fellowship for practicing equity in computer science, and that was great for motivation. They participated in a national group that got together and were all very positive. That was their self-care, to be in those meetings and working on national issues. In their own classroom, they hoped to work on inclusion in diversity issues, but the real question was about how to connect with students that do not even want to be in the classroom. JS had a lot more support in their school with people who were ready to give teachers a break when they needed one so that there was a supervising adult in the classroom. That created a feeling of wellbeing for JS. But otherwise, the class was moving at a slower pace than ever before. Even face-to-face it was nothing like the
pre-pandemic times. JS said emphatically, “I don't think I don't know that we'll ever go back to the pre-pandemic life that I didn't even know how good I had it back then.” Everything was very stressful, with the added baggage of a lot of meetings and dealing with policy changes, for example.

Their home scenario also changed when their son went off to college. What I heard in her responses was a lot going on at the same time and the feeling of being extremely overwhelmed. It was good, however, to hear that amongst all this they were trying to do well. Another thing they mentioned that helped them do well was meditation. On the wellness scale they rated themselves a five because they felt they were going through a lot and not feeling good about it. They felt that, compared to a lot of people, they did not have to be perfect.

CS felt that when they were teaching at home, they had time for exercising and eating and drinking well. Later, time at school was critical, so they were gaining weight and it was not good for them psychologically and emotionally draining. Additionally, they spent an extra two hours at work that they were not paid for. They said something very important:

Not only is everything psychology draining for teachers, but teachers have to wear different hats. And you know, some of the mental health issues of the kids are difficult so you end up being a counselor. You end up being you know, definitely a teacher, you end up having to be a master mind at motivating and coaching. Coaching meaning, you know, sort of emotionally support them and in give them some, some ways that they can do things differently and then put out there something that that they can shot for, whether it's college or or what have you. So that's been very draining. To say the least.

As mentioned, they rated themselves a five on the wellness scale. When at home, eating right and drinking a lot of water helped them cope physically and emotionally, but it was rough overall with news of fires and flooding coming in.

Critical Incident Components

The critical event analysis method has a critical incident component. This includes probes about what factors helped the participants with their self-care and hindering factors that challenged their self-care. It also explores items that may be on a participants’ wish list were such a pandemic-like situation happen again that could impact education in many unknown ways. The following sections discuss the findings related to these factors.

Critical Incidents

Teachers found that there were some critical incidents or components (Butterfield et al., 2009) that helped them do better in terms of emotional health and their work during the COVID-19 pandemic. Some of those are described below. Teachers responded differently about what were critical factors for them and let their voices be heard.

Self-care

Self-care is the crux of being able to do one’s work well. JS took two online self-care classes and started reading books on happiness. There was also an equity fellowship they received and that made a positive difference to how they viewed their work. This kind of validation makes one more motivated to do better. They took a break over Christmas and responded to student emails sparingly because their “me time” was critical. Of course, there was anxiety about the news of forest fires, flooding, and the weather, but these methods helped them
to stay grounded. CS added that exercises and eating and drinking a lot of water to keep hydrated was a key factor in how well they did their job.

**Administrative Support**

CS and SD both responded that supportive colleagues and any support from the administration made a huge difference in their ability to teach online during a pandemic phase. It reflected the trust that school had on teachers and encouraged them to engage more with the students.

**Teacher Flexibility**

Teachers need to be ready with backup plans constantly and not only in the context of online teaching if technology does not work on a certain day. This kind of flexibility that teachers develop, VS thought, was a critical component in their success. A teacher’s Tuesday is not going to be the same as their Wednesday. It is said that in a day, teachers make more decisions than a surgeon makes. VS told me,

In a day, teachers are constantly maneuvering and shifting and learning new things and how to do something. So I think that strategy that I that I had has prepared me to do well in the pandemic. I wasn't always successful, but there but you know, as I said, my Tuesday was different than my Wednesday. So I had success and I had failures. So I've learned from them. If I'm a good teacher, I know that I have a good rapport with my students. That's definite. My test scores are not as high as I like to be but then again, where we were going, that's another subject. But six or seven was is me being honest, and saying, I have good days and bad days, and this is where I'm at right now. And I'm doing the best I can to adjust in the pandemic.

JS also began getting more flexible in order to understand what students wanted to learn. What can I do to get your interest?” Though they were unable to reach all the students, at the beginning of the pandemic students were more engaged but that gradually diminished. JS also brought up the issue of special education students, like her son.

And my son was in special ed. So I kept on thinking about him. And you know, if he was in this situation, what would I want the teacher to do to try and wrap around him and get him to do things, but there wasn't really a lot that that worked? Yeah, I just tried to try to talk to them and reassure them that I’ll accept whatever you want to do, you know, what, what part of the class? Did this look interesting? You could go back and do that part, you know, or how about this one and, and then when they finally came in face to face, a lot of those kids that were not connected, we kind of trickled them in. So the ones that were failing, were the first ones that we had in class. So then, you know, you only have like two kids. So you could say like, really? Okay, let's do this and try to put lots of energy into those kids. And because the bar was set, so low for passing, it did work to get most kids did still pass just getting something through there. But it definitely wasn't the same experience they would ever have in that class again.

It was crucial that teachers were thinking of them because in the chaos of things it was easy to overlook so many things that were critical.

**Support from Colleagues and Students**

Though many teachers did not receive support from school administrators, they always found that support in their school colleagues. JR went to the extent of mentioning that on days
when it was difficult to be motivated to go to school, they would do it only for their colleagues. This showed that we may take it for granted that teachers will show up in school no matter what, but they too have bad days and good days and need that motivation to show up. SD said to me, 

There was complete assistance from my co teachers from my colleagues. From school fraternity from each and every one of us, and with time the students also went very well equipped with this methodology. They started doing more than the teachers you know, sometimes the students also helped us a lot of slowly and gently they mastered the content.

CS also corroborated the feeling that supportive colleagues and any support from the administration made a huge difference to how well teachers were able to teach online during a pandemic phase.

**Hindering Incidents**

Teachers found that there were critical incidents that hindered them from doing the best they could during the COVID-19 pandemic. These are called hindering incidents (Butterfield et al., 2009). Teachers responded differently regarding the most hindering factor for them and a few examples are discussed below. This is a way of letting teacher voices be heard and validated.

**Technology Skills**

Teachers started teaching online during the COVID-19 pandemic almost overnight, scrambling together the resources they had. There was really no time for them at that point to plan out how this online teaching would look or even assess if they had the necessary skills to be teaching online. All of the participant teachers mentioned that they had to be up to speed on how to use the internet and different other technology platforms. A few schools provided some scant training, but largely they were left on their own to learn the new technologies.

This is not to say they had never used technology before, but navigating online teaching, deciding how to put resources online, how to engage students online, and how to conduct online assessments was all different. VS stated,

I think my my ability to do well on the internet was I mean, I can run, I know how to show videos and stuff in class. I know how to, to look at test, test data on the internet. I know how to do the basic stuff that you do when you're in the classroom, but to deliver lessons online, to learn how to use Zoom, or all these other formats, platforms that became available to us during the pandemic, I had no, I had no background, I had no schema. So that's where it took a lot of ingenuity and willingness to learn. Because if I didn't have that, I would not have been successful when I'm able to do my job. So having to jump in and get my feet wet, so to speak. And make make some wrong clicks here and there. What was it was a big learning experience.

**Managing Student Behavior**

High school teachers often find it exhausting to put up with immature elementary or middle-school behavior. JS told me,

I think we just don't have the skills. I'm, I've always been a high school teacher. And so these kids coming in with middle school behaviors or elementary school behaviors, and we really don't know what to do. We don't know what to do. So I'm being told that I can get help. But I don't even know what the help would, would be. And I don't think anyone
does. So all of these crazy behaviors and kids just not being ready to learn in our classes has been really, really hard. Yes, yeah.

**Internet Access**

In SD’s school district, they were still struggling to provide students with internet access and personal devices. SD said, “There were instances in which a lot of like, internet connection, proper establishment of data and everything which is to be presented to the students, which was a little intense, and especially like the internet sometimes, you know, because of weather thing, the internet connections are not very good.”

**Software Bugs**

SD also mentioned that initially when everyone was trying to use Zoom, Microsoft Teams, and Google Classrooms, they had problems with bugs in the coding which is why there were a lot of Zoom bombings that disrupted classes. Later these companies solved those issues and using the systems became more routine. SD observed that,

Google Meet™ in the very beginning had some problems. Zoom™ in, in the mid time also had some privacy issues that you must be knowing about it. Yes. So when encryption problems they had and now things are okay, they have their lockers have blocked on it, and now they are now that's all fine. Okay. No more.

**Helping Students and Their Families**

Some teachers like CS felt extremely uncomfortable that they were limited in their ability to help students and their families. In such situations they turned to God.

Ahh hindering factors. Well, just just the fact that you go to sleep every night and you still got a lot of kids on your mind. Your brain is just constantly moving, trying to figure out how can I save this kid you know, what can I do here? And I really love kids and it's, it makes me cry to think about, you know, what's, what's going on with some of our youth right now some of the difficulties that they're having and so on. So, you know, I go to prayer, I go to God and I would get on my knees and I pray for some of these kids. Because it just I couldn't help them. There's no way I could help them. And so I went to the Father in heaven, say, kids, let the kids have strength, you know. And so that that was something that I would do on a regular basis.

CS also tried to connect to families of students by visiting them. There were many single parents and they were struggling at this time. CS tried to help them, at least listen to them in these critical times. Sometimes if someone listens it makes a lot of difference. In this study that is what I aimed to do, to lend the teachers my ears. CS mentioned,

Sometimes you talk with a parent and then the in and I'd say, you know, what can I do to help motivate them or what can I do in in and they would give me some clues and that would be that would be very helpful. But some some of the parents that I talked to were just say help the ship is sinking, you know? It feels like I'm going down with the ship. And it's so hard, hard for, for me to with parents that I had I need to be a support for parents as well. Especially some of these single parents out there. They're having having difficulty in their own life as well, you know, and, and so, here's another thing that's that. That's hard to stomach. That is that when kids are abused, you know, it's it's, it's we're in person, we kind of know how to handle that. But when kids are remote learning and you know, and you don't, there's maybe more abuse taking place that you don't know about,
which makes it hard to stomach as well. So so that's why I go to my knees in prayer, because those are things that I can't deal with, you know, unless I know about it. So yeah, that's that's the darker side of it. But you know, that's that's the honest side of it. I feel like CS's presence in these families' lives saved them from that “sinking with the ship feeling,” someone to hold on to is what they gave the families. CS explained:

Yes. Yes. So one of the families for example, their apartment complex and I went out to this is a single mom and she's got four kids. And you know, I think I had her in school also she said that Yeah, I had you for for a class in school and I in so I said that must have been way back when I started at Bellingham at my school. And she goes, Oh, yeah, it was hit a sibling rivalry. And so you know, it's it's I've taught for a long time. Some of these parents are students that I did have and so it just it was good. In that case, I was able to her son really had it was really hard. For him to open up in class. And it's so that really helped me with him, especially and he did open up in class and it was very I could see that this was going to be a good thing, but it just it's tiring. You know, it just wears teachers out to have to do these little things.

**Hindsight 20/20: Wish List Items**

Wish list (WL) items include people, supports, information, programs, and circumstances that were not present at the time of the participant’s critical experience, but that they believed would have been helpful. For this study, these WL items might have been useful for the teacher participants to cope with teaching inline during the COVID-19 pandemic.

**Administrative Support to Teachers**

Most of the participants stated that they had expected more administrative assistance and support from the school and school district. Teacher JS said that these supports could have been in the form of giving teachers more time to draw up and finalize their lesson plans or designing the scaffolding for teachers who taught multiple courses and grade levels. It was especially true for them because much of what they taught was hands-on. One teacher, VS, said, “I understand that administration was in a bind themselves, and they were making decisions based on the minute and we had to go with it. But I didn't feel supported as much as I would have liked by administration.” Another teacher, JS, mentioned that in their school district students were not allowed to use cell phones within classrooms, but when a teacher tried to enforce that rule in the classroom, they got a letter in their file. Schools also did not enforce any consequences for students during the COVID-19 online schooling period who did not complete a single assignment.

While many teachers did not feel supported by school administrators, there were teachers like SD who felt extremely supported by the administration, be it with the availability of technology they needed or the training to learn new skills. This difference in teacher voices reflects the differences in school districts, their resources, and their willingness to support the teachers. These voices, be they similar or dissimilar, need to be amplified so they do not get buried under larger narratives that gained momentum during the COVID-19 pandemic. One example of those distracting narratives was that of questioning whether online remote teaching was a success or a failure and how technology was used during online teaching.
Parental Support to Teachers

Teachers continued to say that they expected that parents would have been more supportive. VS observed that parents were appreciative at the beginning of the virtual learning and recognized that the teachers had a difficult job. But once students began trickling back to the physical classrooms, that appreciation seemed to dwindle. VS gave an example of what was going on with the Chicago school system where parents were going head-to-head with the teachers’ union. That was not a healthy circumstance.

Teachers realized they needed to get the children back to school and VS, as a parent, understood that. Teachers who were also parents had to figure things out at their home and their school, but they needed that parental support to help guide the virtual learning and the gradual return of children to school. It was not easy when the parents are not at least “gracious in understanding what kind of predicament or pickle that we're in,” according to VS. Everyone was in it together trying to teach the students.

Another teacher, JR, also mentioned that they had a fallout with the school administration when a parent reported that they were forcing a student to complete an assignment, when the student had not completed one single assignment throughout the year. Parents even pulled their students out of school if they were required to sanitize the stuff they used.

Professional Development for Teachers

Many of the teachers mentioned that some form of professional development on online teaching tools, strategies, and pedagogies would have been really beneficial to them when they began teaching online during the start of the COVID-19 pandemic. They had no idea how long it would go on for and as time went by they gradually found it very difficult to continue teaching online. In-depth professional development could have been provided to teachers based on what they really needed. For example, CS said they needed more practice and knowledge in accessing stuff online. They also needed to remember the needs of the students, but when helping over 150 students, better technological skills would have come in very handy, they felt. VS also said that they wished they could have had more preparation.

Proper Vaccination Procedures Declared

School districts had to have very specific vaccination procedures. This enabled teachers to invite volunteers to help them with classroom management, parental communications, and help with scaffolding. JS said, I teach six different classes, so there isn't, there's not really time to go like today's lesson plan for this one, here's how I'm going to teach it to this section of the class, here's what this section of the class is going to. So more time more support for that….They (the volunteers) don't have to be experts in my curriculum, but just behavioral management help would be really nice, so that I can help those middle of the road kids. The teacher’s frustration at not being able to garner any additional help with their massive workload comes through in their tone and voice. They felt that with everything they had to do they really had very little time left for actual teaching which was their primary job. School administration, parents and students need to really validate these kinds of emotions.

School Systems

Teachers deserved to know how the school system was being run during the pandemic and their knowledge about the curriculum and the students should have been taken into consideration. JR, a bilingual teacher, was asked by the school district to chart out their online
teaching plan and when it was rolled out it was the complete opposite of what JR had designed. Teachers’ expertise must be respected or the school system could end up in a disaster. VS noted, 

I think that's something that we need to look at in case something like this happens again, or if this is something that's going to become a permanent part of, of who we are as an education foundation here in the school systems. I think it's probably gonna be here to setting I think it's gonna be permanent. I think. That's my personal opinion. And I think that the value lessons or the lessons that I value that I've learned firsthand, I think have really helped change that perspective. Because I think my perspective would have been quite the opposite had it not had this been pre-pandemic?

JR thought that in the coming years the school system as a whole would face a huge problem because good teachers were quitting and the people who replaced them were, in most cases, not qualified to be teachers. They just did not have those credentials. “We are leaving our children to people who are not qualified to be teachers. Would we do the same with doctors or even car mechanics?” JR asked. It was an earnest question that this nation must think about profoundly. What can be done to rectify the situation of teachers leaving in droves and employing others without teacher credentials? JR had a sick day and had to visit the doctor. Coming back to school they heard from students and other teachers that the substitute teacher in their class was sleeping. There was no one to check on what they were doing. In that school the substitute teacher could have a high school diploma or a college degree, but how could they be expected to manage a class of rowdy kids? In whose hands are leaving our kids and who can at least manage them in a controlled environment?

On top of this, some schools force teachers to teach subjects they are not qualified or ready for because the schools do not have enough teachers. JR had a coworker studying to be a teacher who was a teacher’s aide. She was forced to teach Spanish then they coerced her into teaching math. She repeatedly said she did not feel ready because she felt she did not have the knowledge to be teaching math. But the administration forced her, nonetheless. Was this completely legal?

Webinars

During the COVID-19 pandemic, seminars were replaced by webinars and they became very popular. Both SD and VS used and made their students participate in a lot of webinars. Webinars where international students also joined removed the geographical boundaries and made them feel very connected. SD said, 

Yeah, getting in touch with students all across the globe, you know, it was not possible for me to deny they were things would have been offline. So taking webinars because theoretical webinar doing webinars with students all across the globe was was a dream for me and talking to different students of different culture, students of different religions, and all across the globe. Was the was the best thing that I had. That was almost like a dream.

Chapter Summary

In this chapter I described my findings under different themes and categories. I have tried to substantiate these findings with actual teacher voices from the transcripts and offered my own understanding about these conversations. In the next chapter I will complete my discussion of the findings and write about the study’s implications, the limitations of the research, and my conclusions.
CHAPTER FIVE: DISCUSSION, IMPLICATIONS, LIMITATIONS AND CONCLUSION

In this chapter, I discuss the main themes of the findings in relation to conceptual and theoretical frameworks and the extant literature about secondary teachers’ experiences while teaching and learning during the COVID-19 pandemic. I contend that teachers’ voices often went unheard and remained in the background of seemingly more critical research questions pertaining to technology use or school policies during this time. I then argue that teachers’ voices are critical in our understanding of a larger and, at the same time more in-depth, picture of education during the COVID-19 pandemic. I examine implications of this dissertation study in terms of research and practice, discuss the limitations of the study, suggest recommendations and contribution to literature and finally present my conclusions.

Discussion

Though the COVID-19 pandemic needs no separate introduction, I will begin my discussion by saying that it actually started spreading by the late months of 2019 and by March 2020 had spread all over the world and had in an unprecedented manner impacted the education sector. From elementary to tertiary levels, educators were in a bind as to how to continue instruction for their students. It was obvious that since schools had already closed, students had to continue their education in a distance education manner and because of the availability of online learning, most educators reverted to emergency remote learning through an online format. This study is situated in a space when COVID-19 pandemic is fading out. Conceptually, I have placed this study within the Emergency Remote Teaching Environment (ERTE) framework as it offers me a model of how K-12 teachers may have shifted their entire teaching to an online platform by inquiring into the existing circumstances of the students primarily, and the teaching resources they have, classifying what resources can be moved online immediately, attempting to design an online teaching plan and format to engage students and also evaluate their experiences. In this study through their experiences, my participant teachers have spoken about all these phases mentioned above and their voices have become the instrument through which I have tried to understand the enormity and the breadth of the COVID-19 pandemic. However, in this discussion I will very loosely associate with this conceptual framework so it does not limit what I have heard and learnt from my participant teachers and gives me the opportunity to discuss it beyond the walls of this framework.

I have also used a theoretical framework, the Strategic Teaching Framework (STF) (Jones et al., 1993) to help explore the relationships among related components (Ravitch & Riggan, 2017). This has enabled me to contribute richly to my understanding of the teachers’ perspectives and sense-making of the data (Neuman, 1997) while not limiting the data to the confines of the framework. Therefore, the data in this study will not be bound or limited within the framework but freed up to create new meanings and to assign weight and significance to teachers’ voices, feelings, and emotions. Some of the components that are common between both the STF and this study are the goals that drive the learning and instruction, learner characteristics, teacher characteristics, tasks that define the nature and level of achievement, school context, and principles of assessment. These component tie in a way in this study where I might see that during the COVID-19 pandemic situation, the primary goals of the educators are not to complete the curriculum but to keep in touch with the students, bond with them, reassure them about the looming danger, engage them and support their mental health in a balanced way.
The student and teacher characteristics are crucial because they show how students are engaging in the online learning process and how teachers are also doing so with the level of technical expertise they have. The tasks talk about how teachers are redesigning the curriculum, setting new assignments, and trying to engage students through those assignments. The school context has been discussed under Findings as the support that school administrators are providing to their teachers. And of course, the assessments talk about how the schools are deciding to grade assessments.

Though all of my teacher participants mentioned that they have not experienced anything like the COVID-19 in their lifetimes, school closure and impediments to learning are not new in history. As I have stated in Chapter 2 (Literature Review), there already exists a long history of school closures (Ross-Hain, 2020) for reasons such as natural disasters, weather, political conflicts, threat of violence, war, refugee situations, pandemics, and health crises (Baytiyeh, 2019; Tsai et al., 2017; Wong et al., 2014). In some of these situations, there were efforts to continue student education. For example, during World War II, there were instances of using the mail service in France to send educational materials to students (Ross-Hain, 2020). Former versions of distance education would entail students completing assignments and mailing them to the instructor, receiving feedback, and incorporating feedback in the next assignment (Pryor et al., 2020). Some school closures occurred in 1957 during the respiratory virus and Asian influenza pandemic in the United Kingdom (Vynnycky & Edmunds, 2008). Similar school closures were again seen in 2009 during the novel H1N1 virus in the United Kingdom, Australia, Hong Kong, and Bangkok (Chieochansin et al., 2010; Effler et al., 2010; Wu et al., 2010). However, there is not much literature available on how students continued their education during these closures. In that respect the research that is ensuing about the continuance of education in the face of this pandemic is a novel effort. The 2020 school closures due to the COVID-19 pandemic were unique because schools and school districts made an almost overnight transition to emergency remote teaching to continue the education of their students. The US education system was not designed to deal with extended school closures like those during the COVID-19 pandemic.

The COVID-19 pandemic began in the late months of 2019 and by spring of 2020, in an effort to limit transmission of the virus, schools across the globe closed and transitioned to emergency online teaching (Jelińska & Paradowski, 2021). From what I heard from my participant teachers and the school districts they represented, they followed the plans laid out by the administration, though sometimes they responded that these plans did not work to the benefit of the students or did not even support them in ensuring student discipline. Recall that JR was asked by their school district to write about an online teaching plan, where they made sure that each student was cared for. However, when the actual plan was rolled out, they saw it was completely detrimental to student engagement during online learning. Another time, JS reported that when their colleague asked a student to put away their cell phone in class, the teacher instead got a letter in their file for disciplining the students. With incidents like these, teachers did not feel supported by their administration. To me it seemed that this added to the frustration and stress that they already were experiencing due to teaching and handling students online. Had they been supported by the administration, COVID-19 pandemic may have looked a little different in terms of how education was imparted.

Administrators cannot be totally blamed for this because school administrators, teachers, students, and even the parent community faced unprecedented disruption due to education during COVID-19 pandemic as it instigated multiple challenges for them. School administrators, district
leaders, and principals had almost no training in managing schools during a crisis situation. They were as much in a chaos as the rest of the school community and the students and their families. Teachers were now confined to their homes, their existing lesson plans falling short of the current needs, physically removed from their students, and quickly learning and transitioning to new technology platforms to continue teaching (Baird, 2020). For example, CS mentioned that at home they were able to take care of their physical health, like exercising regularly, drinking and eating healthy but while returning to school they could not maintain that meticulously and were gaining weight. So, it seemed to me that teaching from home in certain ways paid off better because teachers were able to spend time on self-care and that is an important component of staying well. With the humongous workload they had, the teachers that I talked to stated clearly that without some form of self-care they could not manage the stress that they were going through. Other teachers like JS mentioned that while at home, they read a lot about happiness and specified their work hours during Christmas to take some ‘me time’. Though students kept emailing them the whole time, they made it a point to answer those emails at very specific times which they earmarked as ‘work time’.

Of course, when schools were closing due to the pandemic, teachers were hit by a series of emotions that they described as insecurity, worry, lack of proper information and a sense of void. Some school districts did not have any specific plans for grading assignments or assessments and I recall JS saying that during the first few semesters of school closure, all the students were given A’s. I understood from the tone of her voice that this was frustrating to them because they knew that some students put in more effort than others and then there were students who did not turn in even one assignment, so this kind of grading system was absolutely unfair for the students. But the teachers were not in a position to argue about these issues with the administration.

From the participant teachers' stories, we see the individual detail of what it meant to be faced with the challenge of emergency teaching and have no road map … the challenge permeated their personal lives and not just their professional time ‘at work’ lives. Some of the challenges that they described were being worried about the home situation of their students, especially if they belonged to a low-SES background. Issues about access to devices and the internet were taken care of during the first phase of the COVID-19 pandemic in most school districts. However, there were still students who did not have their personal devices, sharing devices with siblings or were facing food insecurities in their families. I remember JS telling me that representatives from their school would visit student homes with pizzas. What issues these solved I do not know, but it definitely gave students the understanding that their schools cared about their well-being. At a time like this, this kind of insight was crucial for the students. CS had also reported to me visiting students’ homes to understand their home situation better so that they could design their online learning environment in a way that provided a kind of security to these students. They also mentioned having a long conversation with the mother of a student who was a single mother. To me this shows ways and means that teachers went beyond their regular duties to support their students. These stories bring out these in a way that would have been totally missed by bigger research questions like what technologies did your students use? Some teachers like SD were more buoyant than my other participants because they worked with students who belonged to a more stable financial background. So, they did not mention visiting students’ homes or worrying too much about their home situations. So, these brought out the fact that all teachers did not react similarly to the pandemic situation. Some teachers, like CS, felt extremely uncomfortable at how limited they were in their ability to help students and their
families. As mentioned, the pandemic exacerbated issues of poverty and financial well-being, and school-supplied meals that were a major source of nutritious foods were no longer available (Van Lancker & Parolin, 2020; Walters, 2020).

Studies in K-12 settings during the COVID-19 pandemic looked extensively at online learning, and student and teacher well-being. Dorn et al. (2020) discussed the learning losses that were happening during the pandemic that were especially pronounced for students from low socio-economic backgrounds and those with Black and Hispanic heritage. These students not only faced loss of learning, thus worsening the existing learning gaps, but many were forced to drop out for reasons such as family poverty, lack of learning space, or food insecurities (Dorn et al., 2020; Ferri et al., 2020). During school closures these inequalities were amplified by the lack of resources, including devices for online learning and stable internet connections; a lack of physical spaces to continue learning from home among students; and a lack of support for home-based learning for students from underserved, low-SES, or marginalized backgrounds (Ferri et al., 2020). To overcome these concerns, some researchers recommended that school districts provide improved access to the internet and other e-learning platforms for their students and provide continuous professional development opportunities for their teachers to learn online teaching strategies and pedagogies (Yusuf, 2020). These recommendations are aligned with the question of equity and inclusion that are central to emergency remote teaching.

Students’ socio-emotional learning becomes critical at a time of crisis when they are removed from their usual learning environment, friends, and teachers. Venet (2020) outlined how teachers can stay connected to their students to ensure their emotional well-being and learning progress. Evidence suggests that when students do not go to school regularly (for example, during breaks or holidays) they become less active physically, engage in longer screen time, and experience food issues and irregular sleeping patterns that could result in weight gain and loss of cardiorespiratory fitness (Wang et al., 2020).

While the physical issues are worrisome, students’ mental health can also be affected when they are at home during a pandemic. Stressors such as fear of infection, lengthy home confinement, boredom and frustration, a lack of information about the current situation, lack of in-person contact with classmates and teachers, financial anxiety at home, and lack of personal space may have adverse effects on children and adolescents and may affect their mental health (Wang et al., 2020). Sprang and Silman (2003) stated that children who have been quarantined experience post-traumatic stress four times more than children who have not been quarantined. The authors also mentioned that although there are many common factors between pandemics and other disasters, such as community impact, fatalities, and long-lasting effects, the response to pandemics is unique because being with others is discouraged resulting in isolation (Sprang & Silman, 2003). Quarantine can be associated with insomnia, feelings of grief, frustration, confusion, anxiety, and anger that students and teachers alike may have felt during the pandemic and that may have affected their learning and teaching (Brooks et al., 2020).

JR and VS were also very worried about their students but instead of visiting their homes they tried to keep in constant touch through emails. That of course, was another impediment, as parents simply did not answer emails. At the beginning of the COVID-19 pandemic, the parent community were extremely sympathetic about the teachers and praised their efforts a lot. But as they had to get back to work, they probably found less and less time to communicate with the teachers or even help their students with homework and assignments so whenever teachers wrote to them about a truant child, they ignored those communication. It seemed as though they were
trying to express through their silence that the whole responsibility of the students' education and their behavior was the school’s and the teacher’s responsibility. JR went as far as to vent that probably parents thought of schools as some sort of daycare facility.

One of the most challenging issues that some of my teacher participants faced were regarding student behavior. Here I am not referring to juvenile behavior like messing with computer mice or stealing JS’ t-shirt or even as JR said, completely disobeying to complete an assignment. What I am referring to is more serious and has no reference in literature. JS stated that they received bomb threats from a student and a threat to shoot and kill. I still cannot forget JS’ voice as they narrated that incident. Their voice was literally shaking, and they were hugging themselves as if protecting themselves from those memories. As a mother myself, I cannot imagine what the teacher and students might have gone through, being incarcerated in a classroom for hours, while the police were searching the entire school building, to the point that the teachers were thinking that they should have buckets in the classroom for the students’ bodily needs so that they would not have to leave the classroom. Such stories are fearful but true and would have been unheard had not the teachers spoken openly about it. JR also mentioned disobedient students and one class that actually refused to do one assignment completely. These stories are unique and have not made it to the current literature, but it paints a more truthful picture of education during the COVID-19 pandemic.

During these student disobediences, my participant teachers mentioned explicitly that they did not receive any support from their school administration. So, I agreed completely that technology and online teaching will have more impact on student achievement when schools adapt to instructional changes according to the platform they are teaching in and how teachers are supported in these efforts (Barbour, 2012). When JR told them about one particular student who did not answer certain verbal questions that were part of a standard and was tied to the promotion of the student to the next grade, the administration said that probably the kid knew the answer but did not want to tell it. In my span of work as a researcher and a former teacher myself, I have really not heard a funnier answer. They paid no attention to the fact that this was tied to the promotion of the student because it was probably decided that all students would be promoted no matter what. JS and VS had mentioned that their schools had decided that all students would be promoted even if they had attempted one assignment only, throughout the academic year. Efforts to talk to the parents also fell flat. About this single student that JR had mentioned, when the parents came to talk to JR they said that probably the student did not understand the question. JR said they did not know how to react. The student did not understand the meaning of questions like ‘What is your favorite color’? JR said that they really had nothing to say to this. High school teachers often find it exhausting to deal with immature elementary or middle-school behavior. JS told me that as high school teachers they probably did not have the skills needed to handle immature student behavior or classroom disruptions. JR reported similar feelings and they both felt that incidents like bomb threats or classroom vandalism were ultimately a result of juvenile student behavior. However, I did not find any relevant literature on this and feel this finding is an important contribution to the understanding of education in a crisis situation.

Literature mentions that under the disorderly circumstances of the pandemic, school leaders and administrators had to address the significant change in pedagogies and teaching formats teachers needed to adapt to almost overnight, while using new tools and new time management strategies (Vu et al., 2020). But it does not mention these small snippets where teachers found themselves abandoned by the administration. JR mentioned that when they
bought some games for their classroom because they were told they received a grant and would be reimbursed; the reimbursement process was very complicated. These experiences are worth being added to the knowledge base of literature so that audiences can read about a true picture that took place during the COVID-19 pandemic. I felt that during these stressing times the least the teachers could count on was support from their school administrators and support from the parents because the students were at home and without constant communication with the parents the teachers would not know.

When talking to my participant teachers it was clear to me that they were highly stressed. In literature I had read about somatic burden (Ryan and Deci, 2017) that teachers might be experiencing. Though my respondents did not mention about somatic or sleep related issues, they vented a lot about emotional exhaustion, and stress-related change (Ryan and Deci, 2017). In fact, because I was in Zoom call I could actually see how tired they looked. They would yawn and stretch often and it made me understand the tremendous physical and emotional stress they were experiencing. Ryan and Deci (2017) investigated the roles of two forms of leadership that may impact teacher performance, autonomy-supportive and autonomy-thwarting leadership, factors that may impact personal workplace buoyancy. Collie (2021) sought to explore these leadership types and personal resources like workplace buoyancy as predictors of teachers’ stress outcomes during the COVID-19 pandemic. To me it seemed like their performance as teachers though were not impacted by autonomy-supportive leadership while they also did not display any form of autonomy-thwarting leadership factors. To me it seemed like they used their own workplace buoyancy (Collie, 2021) to keep performing at their best.

Sometimes the strategies that teachers used while teaching were very successful and other times they were not. JR thought that traditional learning strategies like copying answers or just plain calculation did not work well unless the students were given the reason behind why they were doing that. JS would go into the classroom and cut out things on the latest laser cutter. It was similar to the bridge project and students didn’t understand how it would work. The logistics were difficult because by the time students asked questions about the activity JS would already be in the classroom ready to cut it out and it became a long process of going back and forth. These examples tell other teachers that the effort matters, not the outcome. If teachers are motivated to try new different things, their students understand that kind of effort and put it back in their work.

VS felt that the most challenging thing was to get the students to put their cameras on; it was difficult to teach to a black screen with just names showing. Most of the teachers mentioned this issue and agreed with this. CS felt that their inability to be nimble with internet access was an obstacle. They often struggled to access information online. Therefore, continuous PD opportunities are crucial to keep teachers updated on online teaching strategies. JS was very positive even about teaching strategies that were a wreck simply because the students enjoyed the process. To them, that was crucial. One example was when the students participated in a bridge building activity that was discussed in the previous chapter. As a researcher, I understand the success of a teaching activity does not depend on whether students are able to complete that activity correctly, but what they are learning in the process. Literature does not include such incidents where instructional strategies are a total failure. Working on Zoom™ was frustrating in courses that required hand-on activities and learning. More challenges appeared for teachers in the form of media disruptions. During online teaching there were often “black boxes” as I mentioned above, on Zoom™ or Google Classrooms™ when students logged in but were “invisible.”
While teachers like JS experienced intense frustration, other teachers said students were very understanding of the fact that this was all a trial-and-error process. SD said, “The students were flexible. They also understood the situation, that it was an experimenting time for all of us … and things only went better. … It never went from good to worse. It always went from worse to good.” These stories make teaching and learning during the COVID-19 more palpable and relatable to other teachers who were not able to speak about their experiences. But all was not so gloomy. CS mentioned that their strategy was to present themselves to students as another vulnerable human being. That, they thought, would help students relate to them. This may not be an instructional strategy, technically speaking, but it worked well with the students because it was relatable to them. Again, this was not mentioned in the literature. VS noted that because they taught math, a conceptual subject, they used a whiteboard frequently. Sometimes they used digital whiteboards while at other times they would video record themselves while solving a math problem in front of the physical whiteboard in the classroom. SD, who also taught high school math, mentioned using whiteboards frequently and supplementing it with websites like Khan Academy™ to help students conceptualize a problem. That helped to show multiple ways to solve problems. Similarly, whiteboards, though they seem to be very popular, were not mentioned in literature. JR understood that middle school students are interested in video games, so they used gamification strategies and some online board games to motivate and engage students with the content. They also used some fun things in class, such as JR’s claw machine. Gamification, though it is fun for the students, is not included in literature for instructional strategies. JR earmarked 15-minute periods when students could talk to JR and clarify any doubts. That was the initial plan, to replicate a face-to-face class as much as possible so that the students would have a sense of the old routine. Again, such strategies are not mentioned in the literature review. Stories like this told me how much the teachers thought about engaging their students and trying to help them relate them to the content they were learning.

The effort that the teachers really put on wanted me to make me ask my participants about their wellness which I have spoken about briefly before. Doing well means different things to different people. JR felt that just being alive sometimes can mean doing well. They were happy with their job because they were good at it and that also was part of being well, for them. But they also had concerns, both emotional and financial for their families. CS felt that when they were teaching at home, they had time to exercise and eat and drink well. This manner of self-care was crucial for teachers and the literature reported it as such (Amri et al., 2021). This was reflected in literature, as well Vu et al., 2020). VS was also similarly stressed about their job and did not feel good in terms of wellness. They anticipated that even if they returned to the physical classroom they had to be prepared to go back online at any time. There is no denying this was a challenging period for teachers and the pandemic truly upset their professional lives (Collie, 2021). Prior research on major societal disruptions has shown that they have a negative impact on teachers’ wellbeing, increasing the potential for teachers to experience maladjusted outcomes (Malinen et al., 2019).

SD thought they were doing well by staying at home, although they wondered if they may have become a little lazy. The workload did not decrease; in fact, to prepare study materials and resources for online classes and deliver lectures required more planning. These stressful feelings and increased workload were, in fact, studied by Kaden (2020). They felt that the support they garnered from the school administration, colleagues, and even students was very important for their wellbeing. Literature shows that school districts tried their best to take care of
their teachers, but it was a new kind of crisis for school systems, as well (Baird, 2020). They did try to ask teachers to take time off technology or sent teachers thank-you baskets, but the support that teachers were expecting was more work related.

JS found everything quite challenging. One good thing was receiving a fellowship for practicing equity in computer science, and that was great for motivation. They participated in a national group that got together and they were all very positive. This kind of positive workplace buoyancy is crucial for teacher performance. Since workplace buoyancy means the capacity of a teachers to navigate adverse challenges at work (Martin & Marsh, 2008) I see it as a highly relevant factor in truly understanding what the teacher community faced during the COVID-19 pandemic. JS had a lot more support in their school with people who were ready to give teachers a break when they needed one so that there was a supervising adult in the classroom. That created a feeling of wellbeing for JS (Ross-Hain, 2020).

All of the teacher participants reported that communication with parents was a big challenge because parents would not respond to messages. This also was reflected in literature; Cullnane and Montacute (2020) noted that this additional duty expanded the teachers’ workload. Most of their participants also reported a notable decline in students’ engagement and learning outcomes, plus an interesting correlation between school engagement and family income (Cullnane & Montacute, 2020). My respondents reported being worried about their students and about not being able to see them in person. In a study by Trudel et al. (2021), teachers reported that they cared about their students and missed in-person interaction with them. At the same time, they were worried about their home situation. They recognized the inequities that many students faced in access to online learning and tried to help those students, either with offline learning resources or by connecting them to the school district for help in getting internet access. Teachers have long been vocal about the digital skills gap highlighted by the National Education Technology Plan (U.S. Department of Education, 2017). These stories about doing well are not only about doing well but trying to do so. In the midst of everything what looms large is the teachers always worrying about the wellbeing of their students too (Trudel et al., 2021). Policymakers should understand that while not being a key job responsibility of a teacher, they do it nonetheless because they care. This should be reflected more clearly in literature and such stories are the main contribution of this study to the researchers on COVID-19 pandemic.

While returning to traditional face-to-face teaching, many teachers reported that they feared contracting COVID-19 from other colleagues or teachers (Weinert et al., 2021) but this did not hinder them from going to school to teach in the classrooms. My participants reported the same and so they followed strict social distancing protocols within their classrooms.

The most interesting part of this study is finding out about what the teachers think as the critical components of what made their jobs more meaningful or more challenging. Teachers found that there were some critical incidents or components (Butterfield et al., 2009) that helped them do better in terms of emotional health and their work during the COVID-19 pandemic. Teachers responded differently and let their voices be heard about what the critical factors were for them. Even if we do not look at critical incidents as a methodology approach, as an educational researcher these incidents indicate the most critical issues in a crisis that policy makers and future researchers can use as a precedent for charting a risk management plan. Some of those critical incident components are described below. Self-care as I mentioned before is the
crux of being able to do one’s work well. JS took two online self-care classes and started reading books on happiness. Receiving an equity fellowship also made a positive difference to how they viewed their work and provided motivation. They took a break over Christmas and responded to student emails sparingly because their “me time” was critical.

Vu et al. (2020) looked at these self-care measures that teachers took to maintain their emotional and physical health. Of course, there was anxiety about the news of forest fires, flooding, and the weather, but these methods helped them to stay grounded. CS added that exercises, healthy eating, and drinking a lot of water to keep hydrated were key factors in how well they did their job. Kaden (2020) talked about stressful factors that harm teachers’ professional performance.

VS talked about teacher flexibility as a critical factor during the COVID-19 pandemic. In a crisis situation when not even the school administration can offer them a fool-proof risk management plan, teachers have only themselves to rely on. At that point, if they can be flexible with their pedagogies, instructional strategies, and teaching and learning resources, they can connect to students more effectively. The teachers always needed to be ready with backup plans constantly and not only in the context of online teaching, for example if the technology did not work. This kind of flexibility, VS thought, was a critical component in their success. The literature does not talk about teacher flexibility but there are indications that, in times of need, teachers are able to alter their instructional strategies (Pennisi, 2020). It was crucial that teachers were thinking of this because in the chaos it was easy to overlook many critical issues. This is an interesting take on a critical component.

Though many teachers did not receive support from school administrators, they always found that support in their school colleagues. This was a crucial component in helping teachers excel at their work and feel less stressed emotionally and mentally. JR mentioned that on days when it was difficult to be motivated to go to school, they would do it only for their colleagues, showing that teachers will show up in school no matter what, but they too have bad days and good days and need motivation. SD shared that there was significant assistance from their co-teachers and colleagues.

Examples of employee wellbeing include connecting to others (colleagues, friends, community), giving (supporting others), being active (physical activities), taking notice (being more mindful and intentional), and continuing to learn (learning new systems) (Malinen et al., 2019). CS also corroborated the feeling that supportive colleagues and administration made a huge difference to how well teachers adapted during the pandemic.

Teachers found that there were critical incidents that hindered them from doing the best they could during the COVID-19 pandemic. These are called hindering incidents (Butterfield et al., 2009). Teachers responded differently regarding the most hindering factor for them and a few examples are discussed below. Hindering incidents are reflected in literature as challenges that teachers faced during the COVID-19 pandemic. This is a way of letting teacher voices be heard and validated.

Teachers started teaching online almost overnight during the COVID-19 pandemic, scrambling together the resources they had. There was really no time for them at that point to
plan out how this online teaching would look or even assess if they had the necessary skills to be teaching online. All of the participant teachers mentioned that they had to be up to speed on how to use the internet and other technology platforms. A few schools provided some initial training, but largely they were left on their own to learn the new technologies. Teachers were confined to their homes, their existing lesson plans fell short of the current needs, they were physically removed from their students, and needed to quickly learn and transition to new technology platforms to continue teaching (Baird, 2020). So, literature reflects the same struggles that my participants discussed with me. These struggles were real and researchers, school administrators, and policy makers had a lot to contribute to the alleviation of these struggles.

Teaching with technology was a steep challenge for teachers (Yusuf, 2020). This is not to say they had never used technology before, but navigating online teaching, deciding how to put resources online, how to engage students online, and how to conduct online assessments was all different. Dorn et al. (2020) discussed the learning loss that was happening as a result of online learning during the pandemic that was especially pronounced for students from low socio-economic backgrounds (SES), and those with Black and Hispanic heritage. These students not only faced loss of learning, thus exacerbating existing learning gaps, but many were also forced to drop out for reasons such as family poverty, lack of learning space, or food insecurities (Dorn et al., 2020, Ferri et al., 2020).

The inequalities during school closures were amplified by a lack of access to resources, including devices for online learning and stable internet connections; a lack of physical spaces to continue learning from home among students from underserved, low-SES, or marginalized backgrounds; and a lack of support for home-based learning for students from underserved, low-SES, or marginalized backgrounds (Ferri et al., 2020). To overcome these concerns, some researchers recommended that school districts provide improved access to the internet and other e-learning platforms for their students and provide continuous professional development opportunities for their teachers to learn online teaching strategies and pedagogies (Yusuf, 2020). These recommendations were aligned with the question of equity and inclusion that were central to emergency online teaching.

The issue of internet access loomed large when the COVID-19 pandemic began. Before this time, empirical studies showed that the digital divide was closing (van Deursen & van Dijk, 2019), but in SD’s school district they were still struggling to provide students with internet access and personal devices. SD said, “There were instances in which a lot of like, internet connection, proper establishment of data and everything which is to be presented to the students, which was a little intense, and especially like the internet sometimes, you know, because of weather thing, the internet connections are not very good.” This issue has not been well discussed in literature, though some studies point out related issues.

The pandemic acutely exacerbated issues of poverty and financial well-being. For many students, school-supplied meals are their main source of nutritious foods (Van Lancker & Parolin, 2020; Walters, 2020). Additionally, students in low-income families were especially at risk of receiving very little to no support for their learning at home while navigating new technology. There is also the issue of bad quality internet or no internet access that can result in a “homework gap” where students are not able to complete assigned homework because of their internet problems (Consortium of School Networking, 2017). SD also mentioned that initially
when everyone was trying to use Zoom™, Microsoft Teams™, and Google Classrooms™, they were problems with bugs in the coding which is why there were a lot of Zoom™ bombings that disrupted classes. Later, these companies solved those issues and using the systems became more routine. This issue was real but there were few empirical studies on it so this finding may be important for school administrators if classes need to revert to online teaching.

Another interesting factor that the teachers talked about was some of the wish list items that would have made their jobs easier and probably more interesting. Wish list (WL) items include people, supports, information, programs, and circumstances that were not present at the time of the participant’s critical experience, but that they believed would have been helpful. For this study, these WL items might have been useful for the teacher participants to cope with teaching inline during the COVID-19 pandemic.

As I have already talked about how teachers wanted more administrative support, most of the participants stated as one of their wish list items that they had expected more administrative assistance and support from the school and school district. Teacher JS said that these supports could have been in the form of giving teachers more time to draw up and finalize their lesson plans or designing the scaffolding for teachers who taught multiple courses and grade levels. It was especially true for them because much of what they taught was hands-on. Of course, the teachers understood that the administration was also in a bind, but they still expected support in times where there were policy or discipline related issues. Though the literature shows that school districts and administrations tried to help the teachers in whatever they could, and this might have been true in some cases, my participants felt desolate. This feeling of desolation must be validated because it was true and affected their work life.

Teachers continued to say that they expected parents would have been more supportive. VS observed that parents were appreciative at the beginning of the virtual learning and recognized that the teachers had a difficult job. Once students began trickling back to the physical classrooms, that appreciation seemed to dwindle. The concept of homeschooling priorly had its focus on smaller groups of students who may not have had access to brick-and-mortar school buildings for various reasons. However, now, due to the occurrence of COVID-19, homeschooling has become a favored method of continuing instruction and parents had a critical and operational part in it to ensure the success of their students. “Although parents and teachers have distinct roles in students’ education, they have overlapping influences on student engagement” (Borup et al., 2014, p. 128).

This opportunity to continue student education also depended on the social situation of students’ families, such as whether the students already had or could be provided with digital devices and internet access and support to access learning content or had the opportunity to set up their own learning space, for example. Another factor was whether parents had the opportunity to monitor their students’ learning process, because some parents’ work was related to the provision of frontline functions, such as medicine, emergency services, and the supply of goods. Similarly, some parents who had to go out of home for work, were less likely to be involved in supporting their students’ education. Single parents, or parents who became ill with COVID-19 themselves, could also not be fully involved in the children’s homeschooling efforts.
Studies have already shown that family’s higher financial means or higher levels of parental education were able to cope with this crisis more preparedly and were satisfied with the benefits of distance learning. Dong et al. (2020) believed that parental support was more crucial during the younger and formative years of the children during homeschooling. There were risks associated with digital security, like a student visiting restricted sites (Dong et al., 2020).

Ravichandran et al. (2020) drew attention to the apparent rise in child abuse and neglect during the homeschooling years. Also, parents’ beliefs and attitudes about early digital and online learning have been polarized in the past decade, with some parents convinced that it is the teacher’s responsibility, while not understanding the constraint that the teacher is not present at home (Ravichandran et al., 2020). Therefore school-community partnerships have been a healthy alternative for providing accountability for student learning as well as their emotional well-being (Casto, 2016). The National Commission on Children and Disasters (2010) has put more stress on child well-being than completing a curriculum.

Many of the teachers mentioned that some form of professional development on online teaching tools, strategies, and pedagogies would have been beneficial when they began teaching online during the start of the COVID-19 pandemic. They had no idea how long it would go on and as time went by they found it difficult to continue teaching online. In-depth professional development could have been provided to teachers based on what they actually needed. Most of the participants mentioned that they would have loved to participate in regular PDs and that it should be included in pre-service teachers’ curriculum, too. Most school districts did have several days earmarked for teacher PD and this was encouraging to see. What schools need work on is what PDs they should focus on.

School districts had to have very specific vaccination procedures, but these procedures were not consistent across states and school districts. This made it difficult for teachers to invite volunteers to help with classroom management, parental communications, and scaffolding. The literature does not include much research in this area, suggesting the potential for future research directions. Never having experienced a pandemic before, some schools did not have proper cleaning and sanitization procedures in place. JS told me that they were thinking about the cleaning procedures for the keyboards. Because many parents did not want their children to touch sanitization stuff, JR wanted the students to use their personal devices. But that did not work out because students did not want to take their personal devices to school. So, the teachers had to wipe down everything after the students used them. JS wanted to buy new mice and keyboards because theirs were old and had gross buildup that was difficult to clean. If any student did bring their own device to class, they had to figure out how to connect the keyboards to their devices and how to update the software they were using. These were new problems that neither the teachers nor the students were prepared for. These are issues that are very pertinent to everyday teaching but have not been stated explicitly in literature. This further contributes to building up a richer knowledge of teachers’ experiences.

Teachers deserved to know how the school system was being run during the pandemic and their knowledge about the curriculum and the students should have been taken into consideration. JR, a bilingual teacher, was asked by the school district to chart out an online teaching plan and when it was rolled out it was the opposite of what JR had designed. Teachers’ expertise must be respected, or the school system could end up in a disaster. Zhao (2011) found that schools had to strategize to adapt their mindsets, policies, and practices about technology to
develop virtual technology competencies. Technology and online teaching have little impact on student achievement unless schools also change how instruction is designed, delivered, and supported (Barbour, 2012).

On top of this, some schools forced teachers to teach subjects they were not qualified or ready for because the schools did not have enough teachers. JR had a teacher’s aide coworker, studying to be a teacher, who was forced to teach Spanish and math. She repeatedly said she did not feel ready because she lacked the knowledge to teach math, but the administration forced her, nonetheless. Was this completely legal? The literature has not stressed the impact of school systems on education during the COVID-19 pandemic, but this is critical because one school or one teacher cannot make a huge difference. Policy makers should focus on this issue if in the coming years they want to see better student outcomes.

During the COVID-19 pandemic, seminars were replaced by webinars and they became very popular. Both SD and VS used and made their students participate in a lot of webinars. Webinars where international students also joined in helped to remove geographical boundaries and made them feel connected. Again, webinars were not frequently mentioned in the pandemic literature, but they were effective at reaching multiple students on a single platform.

These critical components, the hindrances and wish list items are truly unique because they bring out the most crucial aspects of teaching during the COVID-19 pandemic and are not linked to any particular literature. As educators, researchers, and policy makers these components are what we want to look at, ponder about and design our education policies around. This brings us to the end of the discussion section and I hope I have been able to uphold the teachers’ voices, their stories and their experiences that had truly painted a slightly different picture of education during the COVID-19 pandemic.

Implications of the Study

The implications of research on teacher voices and their experiences of teaching during a critical time, such as a pandemic or wartime, for example, are critical for giving teachers a chance to speak without restrictions. This study is one of only a handful that exist documenting the experiences of secondary teachers who taught during the pandemic and later transitioned back to face-to-face classes.

Implications for Research

The findings of this study suggest that secondary school teachers have a positive attitude about integrating technology in the curriculum. They receive formal and informal learning opportunities and support for using technology that could take the form of technology training during pre-service teacher training programs as well as conferences, webinars, and training provided by companies whose products a school or school district is using. This did not however, prepare them fully to teach for more than two years on an online platform.

More than technology awareness and skills, teachers and students alike experienced a kind of tiredness from dealing with technology all day long. This had not happened with in-person human interactions and is an avenue of potential research. Teachers began using technology in an incremental manner, but they felt that technology could be overwhelming, and they needed to keep up. It took an investment of time to learn new technologies that they could integrate in their classrooms. Also, there are some technologies that need to be used in certain
courses and if students are learning from home, teachers needed to plan ahead and make sure that students have those specific technologies on their home devices also.

The teachers’ level of technology skills affected how students used the technology and the teacher participants in this study expressed the need for continuing professional development for upcoming technologies. Schools and school districts need to explore avenues of funding to support their technology integration plans so that teachers and students do not experience an interlude in their technology experiences. Another part of support from the schools and schools and districts would be paying attention to what the teachers are saying on different levels and include that knowledge in their actions and policies.

The teacher participants in this study used several technology platforms in their classrooms for teaching and classroom management. Like other research on technology use in secondary classrooms (Kormos, 2018; Polly & Binns, 2018; Ritzhaupt et al., 2016), this study’s findings have indicated the importance of how technology can be used in classrooms in a planned and purposeful manner. This applies even in schools with fewer resources or that are located in remote regions if the teachers are motivated about using technology, have planned well, and have the support of their school administrators. School support was a major part of my findings and teachers need this to perform their jobs successfully.

When schools closed due to the COVID-19 pandemic, schools and school districts faced the consequences of their students’ families’ internet access issues even though the literature indicated the gap had narrowed considerably (vanDijk, 2006). Schools also saw that many students did not have their own devices to learn at home, so they solved this issue by distributing laptops or tablets to their students. However, the more significant issue was the lack of access to a quality internet connection.

The issue of access also brought to the forefront the issue of families’ circumstances, including how students had to take on extra responsibilities and the rise in child abuse during this time. These issues should not be taken lightly, because for students who face this, school is a refuge, and their friends are their society, especially in the secondary years. There should be a deeper look at active policies to improve the overall lives of students in their homes.

The findings of this study also brought to the forefront how teachers hit the ground running and faced steep learning challenges to adapt to online teaching. The National Education Policy Center maintains that very little progress has been noted over the past few years for legislation, policy, and implementation of quality training for teachers to teach online (Molnar et al., 2017). Many researchers argue that online teaching pedagogies should be integrated in the pre-service teacher curriculum as well (Archambault et al., 2014).

Implications for Practice

In light of the previous discussion, the findings in this research suggest that schools and school districts should provide continual professional development opportunities for their teachers to help them integrate technology in their curriculum in a planned and effective manner. School districts, especially the ones who have limited funding or technology resources, may explore new avenues of funding to help support their technology integration plans. This study also brought out the need for including online teaching pedagogies in pre-service teacher curricula as recently discussed. This would help teachers to continue teaching seamlessly in the face of emergencies or teaching online for other purposes.

It is clear that teachers need more support from qualified volunteers or teacher aides to relieve them of some administrative tasks so that they can focus more on their teaching
responsibilities as it is quite known that teachers have overwhelming workload. Schools and school districts should investigate this and make serious efforts to recruit supplementary staff if they want to stop qualified and experienced teachers from leaving. This workload and pay gap are unbearable for teachers in a very real-world sense.

As this study shows, many students do not have access to technology at home or do not have access to quality internet connection. This issue became more acute during the pandemic when students had to continue online learning from their homes. It is crucial that researchers, educators, and policymakers make this issue a critical one in their current agenda. The findings about students lacking access and/or parental support may also have practical implications for how to improve students’ experience using technology to improve their learning outcomes.

Teachers in this study expressed that the parent community also needs to show solidarity with the teacher community instead of blaming them when their students are unsuccessful. They need, most essentially, to keep communication with the teachers open so that any issues may be sorted out without delay. This measure has implications for students’ academic success because research shows that students with parental involvement at home showed higher average achievement scores than those who did not (NCES, 2018b). This could also impact issues of achievement gap that shows that the United States ranked 18th out of 37 countries for high school graduation rates in 2018 (Organization for Economic Co-operation and Development, 2020). Technology has become integrated tightly with education by ushering in a new format of learning where technology has been shown to scale and sustain instructional practices that in in-person learning situations may prove to be too resources-intensive (Mohammed, 2019). To integrate technology in education successfully, we may consider discussing pertinent issues with the teachers and keep them in the fold.

Limitations of the Study

It is essential that I acknowledge the limitations of this study. First, it is important to revisit the epistemological and methodological foundations of this dissertation. As a basic qualitative study (Merriam, 2002), the focus of the research was on local meaning-making that occurred in one bounded system, that is, the feelings and experiences of secondary K-12 teachers during the COVID-19 pandemic. Therefore, claims about the generalizability of this research must be approached carefully because there is no expectation that the contextualized data analysis and interpretation conducted during this research would affect the overall treatment of teachers in schools and education policy.

That said, the lack of generalizability does not mean that these findings are not useful to policymakers, educators, and researchers in education. However, readers should consider the recommendations made with a critical eye to deliberate how these insights may be useful and applicable to a variety of educational contexts. While data were triangulated internally between teachers and documents, there was no opportunity to triangulate information about students’ experiences of learning during the COVID-19 pandemic and after returning to school. In addition, the study highlighted the teachers’ perspectives, but the perspectives of school administrators, students, and the parents or guardians were not examined because they were out of the scope of the research.

Furthermore, the constraints on generalizability inherent in a basic qualitative study, several methodological limitations are important to discuss. First, the context of this study was K-12 secondary schools in three states. Because it was outside the scope of the study and my focus was on teachers’ experiences, I did not collect any data from any other school authorities,
students, or parents. Due to the time constraints, I could not reach out to teachers in all 50 states. However, as a researcher I recognize that each region has its own unique issues that need to be addressed and research needs to continue by recruiting participants from all states and longitudinal studies are needed, as well.

I selected secondary teachers to explore their teaching experiences, feelings, and emotions during the pandemic and after they transitioned back to face-to-face classes. This research focus might lack some crucial facets of particular technology platforms that teachers use that did not surface in the research participants’ narratives because the focus was on their feelings, emotions, and experiences.

The interview data was collected based on the teachers’ answers to the interview questions. Therefore, the data may have been affected by some self-representation bias of the teacher participants. However, I tried my best to make my participants comfortable so that they could speak without feeling that they needed to answer in a manner where they thought that they were saying something that I may want to hear vis-à-vis what their actual perceptions were. There might be subjectivity in the responses but that is what I meant to explore in terms of the teachers’ own experiences and feelings.

The interview response rate is also a potential limitation. I had originally expected to talk to at least eight participants and envisioned some data convergence at that point. I had to abandon this plan when, ironically, three of my participants fell sick from the disease under discussion. Fortunately, with five participants I found a healthy amount of data convergence and interesting divergence that I did not explore further the recruitment of any other participants.

Since data sources of this study were from the United States context only, the implementations of the findings in another context should be done carefully by considering cultural, social, and geographical variables. Additionally, I may have missed some relevant studies during the literature review if they did not use the same keywords I searched with.

While this research represents some of the issues that I experienced during my four years of doctoral studies, prior research, and working with K-12 schools and teachers across the United States, it is only a beginning. In no way would I claim this study to be conclusive. Without a doubt, further research is needed to understand the voices of teachers and include them in the day-to-day running of schools, decisions made there, and policy decisions. Teachers know the students best and what they need, so making them a critical part of all this is important. More comprehensive data collection is needed to shed light on leadership practices and what influenced policy decisions during the pandemic, and on ways to support teachers as essential partners in children’s education.

**Conclusion**

The purpose of this dissertation was to examine the experiences, feelings, and voices of secondary teachers who taught online during the COVID-19 pandemic and later transitioned to face-to-face education. In doing so, I conducted a five-month basic qualitative study that included behavioral event interviews (BEI) with secondary teachers. The data from this study demonstrated that teachers experienced worrisome situations regarding their students and words like panic, nervousness, and insecurity came up when they talked about COVID-19. Amongst all this, they felt ill-prepared to teach online, though they did so for more than two years. The teachers who faced the most difficulty was those who taught courses requiring hands-on knowledge. Teachers were also vocal about the lack of support from school administration and
the parent community. Most interestingly, they talked about teaching strategies that worked and the ones that did not. They also pointed out the critical components in their teaching experiences.

Carried out as a basic qualitative study and critical incident analysis, this study was an exploration of the teachers’ experiences, emotions, and feelings while they were teaching online and during the transition to face-to-face learning. The complexity of emerging technologies and teaching with them during pandemic situations and their impacts on the fabric of societies as well as our bodies, cultural norms, discourses, and social interactions are a critical research problem.

The secondary K-12 teachers helped the secondary students to learn through interactional patterns via technology that were similar to their in-classroom learning and play experiences, while trying to satisfy their need to interact with peers, therefore empowering them by building their confidence in learning various subjects. The students’ feelings associated with their positive and dynamic social experiences (Wood & Baker, 2004) while learning different subjects online, and the recognition and respect accorded by the online teacher, made the synchronous instruction valuable for them. This finding suggests that online education for secondary students should adapt to, respect, and make use of their life experiences, their history and local wisdom, and their identities. This is an important aspect that teachers should pay importance to while designing online lesson plans.

Although the online classes worked well in general with some pitfalls, teachers found classroom management difficult. It warrants reiteration to point out that the online teachers needed to find strategies to maintain their student-friendly demeanor, build online intimacy with the students, and maintain an active and encouraging learning atmosphere. They also would benefit from class volunteers or teacher aides to manage students who take advantage of the absence of classroom discipline. Voluntary teachers realized that their dream of making a difference was hard to accomplish due to the unresolved issues of administering and supporting the program. In addition, the rotation of new, inexperienced, and unqualified teachers with a “get used to it” attitude will continue, and students will be at the losing end.

The school administrators’ traditional views of student learning achievements limited the online teachers’ pedagogical choices, so they had to switch from student-centered pedagogy to lecturing in order to deliver as much textbook content as possible. At the same time, the teachers did could not completely eliminate student-centered pedagogies and they tried to incorporate as much as student interaction in their lesson plans as possible. Behind the school administrators’ dogma was the dilemma of how to fulfill the educational policy requirements, approaches, and assessments set for secondary schools despite school realities and the challenges related to the students’ personal traits, family backgrounds, and financial status.

Teacher demotivation was another important issue found in this study. Most of the teachers shared similar frustrations about working in secondary school schools, especially with no administrative or parental support. Their demotivation revealed that simply bringing in new, unqualified teachers to replace experienced teachers or introducing new technologies would not solve the real problems facing these schools. Fundamental changes that empower students and teachers both open doors to a better future cannot happen unless the system, curriculum, and evaluation practices change. Investment in infrastructure and technology, donations of materials and equipment, and the policy of fixed-term voluntary teacher allocations need to work together with policies that are adapted specifically to secondary education to address student graduation rates of students and college preparation.
Limited access to innovative instruction is far from enough to transform education to benefit secondary students. To truly improve the quality of education for underserved students, educators and researchers should demand better opportunities to accommodate students’ needs, build their confidence, and develop their strengths in learning. Therefore, efforts by and collaboration among different sectors of the educational system are needed. New technology-inspired forms of learning, despite their future potential, are means, not ends, in the long journey toward true educational equity and justice.

But all was not bleak during the COVID-19 pandemic. The pandemic encouraged better communication between parents and teachers, in many cases, and homeschooling required parents to support their students’ learning, both economically and socially. The use of online platforms such as Google Classroom™, Zoom™, virtual learning environments, social media, and group forums like Telegram™, Messenger™, WhatsApp™, and WeChat™ were tried and tested so they could be leveraged more successfully in future online teaching circumstances (Pokhrel & Chhetri, 2020). These options can be explored further, even in face-to-face instruction and the platforms can provide additional resource to support students (Pokhrel & Chhetri, 2020).

Teachers collaborated more actively within their communities to come up with creative initiatives, develop collaborative ventures, and explore new tools (Doucet et al., 2020) and many organizations offered their tools and solutions for free to school districts and their students to support teaching and learning in an engaging and interactive environment (Pokhrel & Chhetri, 2020).

In conclusion, I want to reiterate that this research study answered the research question, ‘How did secondary teachers experience teaching online during the Covid-19 pandemic?’ through the eight main themes: Initial panic and chaos, Springing into action, Wins and losses, Survival of the fittest, Teachers are People too, Critical Incidents, Hindering Incidents, and Hindsight 20/20. The Critical incidents, Hindering incidents and Hindsight 20/20 especially helped me to understand and also contribute to the literature what teachers thought were the key issues that were critical for their teaching support and self-care during the COVID-19 pandemic, the challenges they faced that brought out some crucial factors outside of what I have found in previous literature like student behavior, and what were on the teachers’ wish list items that probably would have made a better impact on their professional lives during the COVID-19 pandemic. The findings of this study show that though my participant teachers never experienced a pandemic before, they all had unique feelings and thought about the ensuing crisis. Though learning new technologies presented a steep challenge to them, all my participants responded unanimously that at that time their primary thoughts were about their students. Though each participant found their unique ways in which to plan out their online teaching strategies, most of them responded that they would appreciate more support and understanding from the school administration and the parent communities. Like learning new technologies, redesigning the curriculum for an online teaching format also presented a challenge, but some teachers faced a greater challenge in managing difficult and threatening student behavior. But this did not impede them from reaching out to students and their families in their times of need. Some of the most crucial findings were about the critical incident and their wish lists that would probably have made a greater impact on how secondary K-12 teachers experienced teaching online during the COVID-19 pandemic.
REFERENCES


DiGregorio, K. (2019). Debunking the myths: Teachers’ perceptions of the use of instructional technology in the secondary classroom (1385622) [Doctoral dissertation, St. John's University]. ProQuest, LLC.


Kundu, P. (2020, May 5). Indian education can’t go online-only 8% of homes with young members have computer with net link. Scroll.in. https://scroll.in/article/960939/indian-education-cant-go-online-only-8-of-homeswith-school-children-have-computer-with-net-link


Murgatroyd, S. (2020b) Reflections on faculty reactions to being required to teach online. *Revista Paraguaya de Educación a Distancia, 1*(2), 5-10.


Hello,
Hope this email finds you well. My name is Parama Chaudhuri and I am a fifth-year Ph.D student at the Department of Instructional Systems Technology in Indiana University Bloomington. My research advisors are Professor Elizabeth Boling and Dr. Anne Leftwich (Dept. of Instructional Systems Technology).
I am aware that I am writing to you at an extremely busy time while you are transitioning to complete online teaching but I ardently hope, as someone closely associated with education, you will lend me a patient hearing. I will be brief. My research broadly engages with teaching and learning using technology. My specific interest lies in exploring the teaching experiences of secondary K-12 teachers during the Covid-19 pandemic. A fundamental question that drives my research is how the teachers experienced Covid-19 pandemic, teaching during and through it and amplifying their voices about underlying concerns and achievements during this time. I will not take more of your time to offer the redundant rationale as to how and why this and any research needs the support of actual practitioners and as in my case, secondary school teachers. I understand that you are extremely busy and therefore the only time commitment will be for one interview. Each interview will be between 1-2 hours and no longer. I can interview you online via Zoom or any other platform of your choice. The anonymity of your participation will be completely respected. The interview protocol will be shared with you before the interview. Participation of course is completely voluntary. This study has been submitted to Indiana University Bloomington IRB.

Please feel free to write to me at pbhatta@iu.edu for information you would like and interested participant teachers can also write to me at pbhatta@iu.edu or connect to me at (812)-955-8775. Here is the link to the recruitment flyer:
https://www.canva.com/design/DAEq1wFlmr0/XWRneIc2PVOwrZvzwRTsgg/view?utm_content=DAEq1wFlmr0&utm_campaign=designshare&utm_medium=link&utm_source=publishshare link

Hope to hear from you soon.
Thanking you,
Sincerely,
Parama Chaudhuri
pbhatta@iu.edu
812-955-8775
Appendix B: Letter to School Teachers

Hello,

Hope this email finds you well. My name is Parama Chaudhuri and I am a fifth-year Ph.D student at the Department of Instructional Systems Technology in Indiana University Bloomington. My research advisors are Professor Elizabeth Boling and Dr. Anne Leftwich (Dept. of Instructional Systems Technology).

I am aware that I am writing to you at an extremely busy time while you are transitioning to complete online teaching but I ardently hope, as someone closely associated with education, you will lend me a patient hearing. I will be brief. My research broadly engages with teaching and learning using technology. My specific interest lies in exploring the teaching experiences of secondary K-12 teachers during the Covid-19 pandemic. A fundamental question that drives my research is how the teachers experienced Covid-19 pandemic, teaching during and through it and amplifying their voices about underlying concerns and achievements during this time. I will not take more of your time to offer the redundant rationale as to how and why this and any research needs the support of actual practitioners and as in my case, secondary school teachers. I understand that you are extremely busy and therefore the only time commitment will be for one interview. Each interview will be between 1-2 hours and no longer. I can interview you online via Zoom or any other platform of your choice. The anonymity of your participation will be completely respected. The interview protocol will be shared with you before the interview. Participation of course is completely voluntary. This study has been submitted to Indiana University Bloomington IRB.

Please feel free to write to me at pbhatta@iu.edu for information you would like and interested participant teachers can also write to me at pbhatta@iu.edu.

Hope to hear from you soon.

Thanking you,
Sincerely,
Parama Chaudhuri
pbhatta@iu.edu
812-955-8775
Appendix C: Social Media Post for Teacher Recruitment

Hope this email finds you well. My name is Parama Chaudhuri and I am a fifth-year Ph.D student at the Department of Instructional Systems Technology in Indiana University Bloomington. My research advisors are Professor Elizabeth Boling and Dr. Anne Leftwich (Dept. of Instructional Systems Technology).

I am aware that I am writing to you at an extremely busy time while you are transitioning to complete online teaching but I ardently hope, as someone closely associated with education, you will lend me a patient hearing. I will be brief. My research broadly engages with teaching and learning using technology. My specific interest lies in exploring the teaching experiences of secondary K-12 teachers during the Covid-19 pandemic. A fundamental question that drives my research is how the teachers experienced Covid-19 pandemic, teaching during and through it and amplifying their voices about underlying concerns and achievements during this time. I will not take more of your time to offer the redundant rationale as to how and why this and any research needs the support of actual practitioners and as in my case, secondary school teachers. I understand that you are extremely busy and therefore the only time commitment will be for one interview. Each interview will be between 1-2 hours and no longer. I can interview you online via Zoom or any other platform of your choice. The anonymity of your participation will be completely respected. The interview protocol will be shared with you before the interview. Participation of course is completely voluntary. This study has been submitted to Indiana University Bloomington IRB.

Please feel free to write to me at pbhatta@iu.edu for information you would like and interested participant teachers can also write to me at pbhatta@iu.edu.

Hope to hear from you soon.

Thanking you,
Sincerely,
Parama Chaudhuri
pbhatta@iu.edu
812-955-8775
Appendix D: Interview Protocol (Behavioral Event Interview) (BEI)

School: _____________________________________________________

Interviewee (Title and Name): ______________________________________

Interviewer: _____________________________________________________

Topics Discussed:____________________________________________
________________________________________________________________

Documents Obtained: _____________________________________________
________________________________________________________________
________________________________________________________________

Interview Comments:
________________________________________________________________

Introductory Protocol (For interview)

Thank you for participating in this interview to assist me with my research project. I aim to understand how teachers use technology in their classrooms and how that affects their classroom practices. I will not be asking you multiple questions. Rather, I am interested in your voice and experience, especially your experience about teaching during the Covid-19 pandemic. Though it is not exactly a think-aloud procedure but it’s drawing from similar methods where the participant voices elicit the information that I am looking for.

To facilitate our note-taking, I would like to audio tape our conversations today. For your information, only the researcher on the project will be privy to the tapes which will be transcribed and presented to the interviewee for member checking. I can stop the interview at any time during the interview upon your request.

I have planned this interview to last no longer than two hours. During this time, I have a few in depth questions that we would like to cover. When we reach 1:15 minutes I will check in with you to see if it is alright to extend the interview for another 45 minutes.

Interview Questions

● Can you describe your feelings and emotions when you heard the news of COVID-19 and subsequently the announcements about the closure of all schools?
  ○ What did you want to do in this situation?
  ○ How did you experience teaching during the Covid-19 pandemic? Describe how you felt learning new technologies?
● After the initial surprise, if you had a little time to think and plan, what were your plans (if any) for delivering education to your students; what actions or strategies did you decide to employ or had already employed?
  ○ What were you thinking, what were you feeling, what were you saying, what were you doing?
Can you think back to the time when you were redesigning/ reorganizing your learning resources and activities? Why did you make certain decisions of changing things or keeping them the same?
- What circumstances did you take into account?
- What was the outcome? What happened?
- What were you thinking about your students during this time? What did you actually do or say?

Tell me about a teaching strategy that worked very well for you and your students?
- Walk me through how you came up with this strategy? Why do you think it worked out so well?
- Can you please share your screen and show me what you did?

Tell me about a strategy that was a total wreck?
- What did you do to rectify the situation?

How are the proposed strategies working so far, and what opportunities or challenges have you experienced?
Appendix E: Recruitment Flier

SECONDARY TEACHERS NEEDED WHO TAUGHT ONLINE DURING COVID-19

GREETINGS! MY NAME IS PARAMA CHAUDHURI AND I AM A PH.D STUDENT AT INDIANA UNIVERSITY. I AM CONDUCTING MY DISSERTATION RESEARCH STUDY ON THE TEACHING EXPERIENCES OF SECONDARY TEACHERS DURING COVID-19 AND ATTEMPT TO AMPLIFY THEIR VOICES OUTSIDE OF STRUCTURED COVID-19 INQUIRIES. PLEASE WRITE TO ME TO KNOW MORE ABOUT MY STUDY AND VOLUNTEER TO PARTICIPATE.

DATA COLLECTION:
- 1 INTERVIEW (1-2 HOURS DURATION)
- COLLECTION OF LESSON PLANS AND OTHER STUDENT ARTIFACTS

INDIANA UNIVERSITY BLOOMINGTON
School of Education
Department of Instructional Systems Technology

Advisors:
Professor Elizabeth Boling
Dr. Anne Leftwich

Parama Chaudhuri
pbhatta@iu.edu
+1 812-955-8775

Appendix F: IRB Approval Letter

550
PROTOCOLS
Bhattacharya, Parama

APPROVAL LETTER

To: Boling, Elizabeth

Protocol #: 12141

Protocol Title: A Study of Secondary Online Teaching Experience During the Covid-19

Type of Submission: Initial

Level of Review: Exempt

Approval Date: Monday, December 13th 2021

Expiration Date: no date provided

*If Expiration Date = "No date provided," this research does not require annual renewal; thus there is no expiration date.

The Indiana University HRPP approved the above-referenced submission. Conduct of this study is subject to the IU HRPP Policies, as applicable.

Additional Notes:

This research is exempt under the following category: -Category 2(ii)

Documents approved with this submission:

Attachments

Study Information Sheet  iu-hso-sis-exempt-template.docx

Protocol Behavioral Event Interview (BEI) Interview Protocol.docx

Recruitment Materials  Recruitment Appendices for Dissertation.docx

You should retain a copy of this letter and all associated approved study documents in your research records.

If you have any questions or require further information, please contact the HRPP via email at irb@iu.edu or via phone at (317) 274-8289.
Appendix G: Indiana University Study Information Sheet for Research

Study Sheet

- They are being asked to participate in research.
  Secondary teachers will be asked to participate in this research study via their work
  emails through the following avenues:
  o Lists provided by a midwestern research university office actively working with
    secondary schools,
  o Reaching out to an organization working with secondary grades in K-12 schools,
  o Through a call for research participation in social media on secondary school pages.
  o Ask recruited participants to refer names of other secondary teachers who taught
    online during Covid-19 and use this snowballing sampling for further recruitment of
    participants.
- What they will be asked to do,
  Teachers will be asked to talk about their experiences of teaching online during the
  Covid-19 pandemic covering topics like what challenges they faced, what kinds of
  support they received from the schools/ school districts, how they adapted their
  instructional strategies, did they find any of these strategies useful? In what way? Will
  they adapt any of these strategies for their face-to-face classes? Why or why not?
- Their participation is voluntary
  Participation is completely voluntary.
- The risks and benefits of participation
  There are no risks involved. The benefits are that if this research gets published it could
  benefit other secondary teachers or other stakeholders involved in online teaching or
  adapting instructional strategies from online teaching to face-to-face teaching.
- Who to contact with any questions about the research.
  pbhatta@iu.edu