Research Article

Instructional strategies used by K-12 teachers during the COVID-19 pandemic

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ARTICLE INFO	ABSTRACT
	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. In the United States, over 13,000 school districts completely closed down during this time. Schools began to offer multiple types and modes of instruction in order to continue providing instruction for their students. One of these was *emergency remote teaching*. During the emergency remote teaching environments (ERTE), teachers worked within the ERTE framework to design their online instructional strategies. The purpose of the study is to report instructional strategies teachers used to provide education to their students during the extremely constrained set of circumstances presented by the COVID-19 pandemic, and to examine their contextualized stories regarding why they used these strategies as well as their perspectives on the comparative success of those strategies. **Keywords:** adaptive experience, instructional strategies used during the COVID-19 pandemic, teacher voices

INTRODUCTION

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 (International Labor Organization, 2020; United Nations Educational, Scientific and Cultural Organization [UNESCO], 2020) when school closures occurred very quickly (Jelińska & Paradowski, 2021) and classes moved online (Berger et al., 2022). Many decisions about teaching were taken without consulting teachers (Jain et al., 2020), and yet teachers were the first responders in those online classrooms (Amri et al., 2021) where they faced multiple challenges and limited support (Dube, 2020). To understand what strategies teachers used when confronted with this situation, interviews were used to elicit from participating teachers their detailed discussions of teaching during the COVID-19 pandemic. The strategies they chose to focus on were identified, along with what they reported about their reasons for using these strategies and their perceptions of how well they did or did not work.

Conceptual Framework of the Study

The primary construct used in this study is the instructional strategy, with specific focus on strategies implemented online. Owing to the context of the study, which is choosing and using instructional strategies during a global pandemic, the emergency remote teaching environments (ERTE) framework was used to situate and discuss the instructional strategies participants reported using (Whittle et al., 2020).

Instructional strategies and online instructional strategies

The construct instructional strategy is mentioned as a key element of instructional design models at least as early as 1966 in Andrews and Goodson's (1979) comparison of systematic instructional design. and pedagogical discussions of instructional design of the time (Rothwell & Kazanas, 2011).

Online instructional strategies are methods and approaches for guiding course content, learning activities and learner engagement through an online platform, which do exist for non-crisis times (Bonk & Dennen, 2003).

It is against this backdrop of long, but incomplete, development of knowledge relevant to online instructional strategies that the COVID-19 pandemic struck, sending most teachers, prepared or not, online to teach.

Emergency remote teaching (ERT)

Under the circumstances of the pandemic educators around the world were not able to leverage the full advantages of the online teaching and learning format owing to a litany of factors, not least of which was the rapid transition to online teaching and learning that left little time for careful consideration of instructional strategies (An et al., 2021; Bozkurt et al., 2020; Crompton et al., 2021). Since much online learning was carried out without a lot of planning during the COVID-19 pandemic, there was a tendency to compare online learning negatively to traditional face-to-face learning, prompting researchers like Hodges et al. (2020) to craft the term emergency remote teaching (ERT) to differentiate what was happening during the pandemic from traditional online learning and teaching. Hodges et al. (2020) defined ERT as "a temporary shift of instructional delivery mode to an alternate mode due to crisis circumstances" (para. 14) and point out that "well-planned online learning experiences are meaningfully different from courses offered online in response to a crisis or disaster" (para. 1), observing that the latter courses may be lower in effectiveness and of diminished quality and therefore should not be taken to represent all online instruction.

The emergency remote teaching environments (ERTE) framework: The ERTE framework developed by Whittle et al. (2020) moves beyond the conception of emergency remote teaching to offer a theoretically grounded and practical method for both understanding and supporting learning in emergent crises by recognizing the appropriate and interdependent activities, which have to be undertaken as conditions shift in the environment, and which could only be "understood circumstantially and supported provisionally" (p. 312).

Figure 1 depicts the ERTE framework by Whittle et al. (2020) in which the actions might occur in any order and might be revisited numerous times as situations change. A key point in the framework is the teacher's identification of constant and variable factors in the environment, constants being those experienced by everyone in the environment and variables those shared by only some. With repeated inquiry to assess the changing situation in emergency conditions, design activities are carried out, and adjusted, with respect to the constants but considering the variables in order to maximize individual student learning.
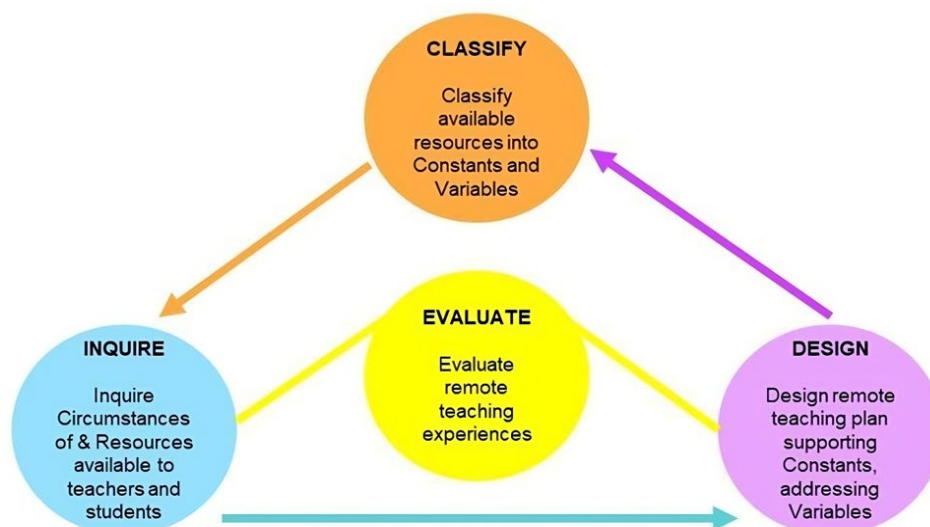
Figure 1. The emergency remote teaching environment framework based on "The emergency remote teaching environment framework: A conceptual framework for responsive online teaching in crises" (Whittle et al., p. 315)

Purpose of the Study

The purpose of the study was to report instructional strategies teachers used to provide education to their students and to examine their contextualized stories regarding why they used these strategies as well as their perspectives on the comparative success of those strategies.

Research Questions

The following research questions were examined in this study:

RQ1: What instructional strategies do secondary school teachers report having used during emergency online learning during the COVID-19 pandemic and why?

RQ2: What is the comparative success of these strategies according to the perspectives of the teachers?

Significance of the Study

In a scholarship environment where teachers and their perspectives, rooted in their experiences, have often been undervalued (Darling-Hammond, 2005; Loughran & Russell, 2007), and at a time when a pervasive disruption in education has occurred, which needs to be understood as completely as possible, there is value in asking teachers directly what they have done and why they have done it so as to understand that they served as intentional actors in a chaotic situation (Whittle et al., 2020).

LITERATURE REVIEW

Context

The World Health Organization (WHO) officially identified COVID-19 as a pandemic on March 11, 2020 (Cucinotta & Vanelli, 2020; WHO, 2020), and this announcement disrupted schooling for over 1.2 billion or 80% of students worldwide (Giannini & Brandolino, 2020; International Labor Organization, 2020; UNESCO, 2020b).

Pervasiveness of the Disruption to Education

The declaration of pandemic resulted in a pervasive disruption to the entire educational landscape as UNESCO estimated that nearly 100 countries issued orders to close down their educational institutions in order to limit exposure (Ross-Hain, 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).

Disruption to all facets of teaching

In this situation, everything about teaching had to change, all at the same time. 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). As comprehensively described in (Hodges et al., 2020) and reported elsewhere (Pokhrel & Chhetri, 2021; Subedi et al., 2020) the move online affected not only teaching practices but how teachers prepared for teaching, how they had to learn new technologies to do so during the COVID-19 pandemic, their professional activities, and their actual teaching. Teachers were forced to teach themselves many aspects of teaching online, from reexamining known technology, learning new technology to selecting an appropriate pedagogy and instructional strategy for online teaching, because campus and school support personnel for online learning were not able to provide support to the masses of teachers in need of that support for online teaching. However, literature does not deeply delve into how teachers adjusted their instructional strategies while using new and known technologies to adapt to online teaching. This research aims to explore this critical gap in previous literature.

Disruption to all facets of learning

The move to online teaching and learning exerted a pervasive effect on learners as well, who found that online schooling presented them with myriad challenges (Dube, 2020; Okada & Sheehy, 2020; Sequeira &

Dacey, 2020). Some researchers in their studies mention that K–12 students were tasked with the care of their siblings during the pandemic when their parents had to go to work and other childcare facilities were not available (Francis & Weller, 2022; Jones et al., 2021; Ross-Hain, 2020), affecting their ability to engage effectively with educational activities and content (Okada & Sheehy, 2020). Food insecurities were exacerbated among many students as free meal programs were temporarily halted until schools could arrange for students to pick up free meals or have meals delivered to them (McLeod & Dulsky, 2021; Van Lancker & Parolin, 2020; Walters, 2020). Some students did not get either the access or the support they needed to use technology, either because their parents could not afford it or were not familiar with it, or they were sharing devices with other members of the family (Ma, 2017). There was also the issue of bad quality internet or no internet access, or sharing a device during the pandemic, causing students not to be able to complete assigned homework (Consortium of School Networking, 2017; Ross-Hain, 2020). Many school districts tried to resolve this problem by working it out with internet providers. Some school districts had school buses parked in neighborhoods which were Wi-Fi connected and students could come there and complete their assignments. Even though there has been studies to explore how schools helped students to remain digitally connected, there is not much knowledge about how students were learning through these digital tools, whether or not they were receptive to adaptations of instructional strategies that they were used to in a non-digital atmosphere in their pre-pandemic classrooms. This study aims to not only explore how teachers were modifying their instructional strategies to optimize the digital tools that they now had access to, but it also reflects teacher voices about their perceived success of these strategies. This is critical to assess the instructional practices when tools that in the past had only supplemented teachers' instructions in classrooms transformed into the primary medium for instruction (Turchi et al., 2020).

Emergency Remote Teaching (ERT)

Hodges et al. (2020) defined emergency remote teaching as a form of online teaching employed during a crisis to account for the limitations in planning time, preparedness to teach online, limitations of access to devices and internet, insufficient support resources, the need to self-teach new technologies and other complications posed by such a situation.

Emergency remote teaching environment (ERTE) framework

The ERTE framework (see **Figure 1**) comprises three nonlinear and iterative steps: inquiry, classification, and design, all of which are linked to evaluation. At the inquiry stage teachers assess the current circumstances including their own technological readiness and skills, students' basic needs (including home situations) and their access to resources like technology, as well as general resources in the school setting and community. During the classification stage factors identified at the Inquiry stage are identified as either constants, or variables. Constants are factors that are shared by all teachers and students within an ERTE, whereas variable factors are those that are unique to only some students and/or teachers. In the design stage "teachers design a plan using the constants as a foundation for each aspect of the pedagogy and variables as a means of maximizing individual learning" (Whittle et al., 2020, p. 314), striving to make that plan a coherent design, incorporating eight dimensions of course design, which emerged in the study as: critical learning goals, ratio of teachers to students, communication method, building agency, assessments, social role of the instructor, pedagogy and the student social role, and feedback. Finally, there is an iterative evaluation of the entire process of emergency remote teaching, which focuses not on the students or teachers, but on the "efficacy of the current approach" (Whittle et al., 2020, p. 318). It is important to underscore the non-linear nature of the phases identified in this framework, given that it describes environments where the luxury of time for orderly planning and stable conditions on which to base such planning are not present. This characteristic of the framework was important as it is used during the analysis of data in this study, wherein teachers' activities were identified within the framework but ordered as reported to have occurred, and not necessarily sequentially. This study will critically evaluate each instructional strategy with respect to the three nonlinear and iterative steps of the ERTE to establish how these strategies could be assessed within this framework.

Instructional Strategies

Instructional strategy, defined as "a general approach to instruction … [which] provide[s] useful advice about how to present and cue content" (Jonassen et al., 1990, p. 32), has long been recognized as a core element of instructional design (Andrews & Goodson, 1979) to be considered prior to the actual instruction.

While Gibbons (2020) included the choice of technology as one element of instructional strategy, it is worth noting as regards studies of online teaching during the COVID-19 pandemic that studies discussing only the technologies used in K-12 teaching are not studies of instructional strategy, but studies in which one element of strategy is being addressed. These include studies of platforms, (e.g., Microsoft Teams™, Canvas™, and Blackboard™), applications (e.g., MS Word™, PDF™, and MS Excel™), their affordances (e.g., live chat, synchronous video meetings, and content repositories), and the ways in which all these were used during the pandemic (Petrie et al., 2020; Pennisi, 2020; Pokhrel & Chhetri, 2021). This study advances beyond technologies as a component of instructional strategy (Gibbons, 2020) to fill the gap in research and appraise how these technologies were used by K-12 teachers to deliver instruction to their students.

Online instructional strategies

Teaching online "requires a paradigm shift in how teachers perceive time and space, manage instructional activities and assessments, and engage students" (Easton, 2003 as cited in Barbour, 2012, p. 504) because of differences in technology affordances, even for a strategy as common as lecture..

Instructional strategies used during COVID-19 pandemic

As an initial guide to identifying the strategies reported by teachers in this study, a list of instructional strategies known to be used by teachers during the pandemic was compiled using two sources. These sources were, *Teaching K-12 science and engineering during a crisis* (Self & National Academies of Sciences, Engineering, and Medicine, 2020), and the dissertation study *Transitions in tumultuous times: Teachers' experiences with distance learning amidst the COVID-19 pandemic* (Ross-Hain, 2020). In both these references, many narrative cases of teacher experiences are presented, from which instructional strategies were identified. An additional source, *Instructional Strategies List* of 49 evidence-based strategies from the Community Training and Assistance Center (CTAC), a nation-wide organization offering research-based services and collaborations in multiple areas of outcome improvement for schools (Washoe County School District, 2016), was used to assist in building the list. While this additional source was not focused on strategies used during the COVID-19 pandemic, it included descriptions of each strategy which were adapted into the list and later used to help interpret from the participant teachers' narratives what strategies they had been using (**Table 1**).

Table 1. Instructional strategies used by teachers during COVID-19 pandemic

Instructional strategy	Description
Academic language/ Vocabulary	Using the domain-specific, discipline-specific vocabulary to introduce domain-specific words, and build on core disciplinary ideas
Activation of prior knowledge	Activate prior knowledge by relating student experiences to learning concepts
Adaptation to differing learning styles	Present content so that students could learn, remember, analyze, and apply knowledge in different ways, such as visually, linguistically, spatially, and others.
Brainstorming	Collaborative activities in which multiple ideas are generated to develop investigation plans, discuss data interpretations, and discuss how the evidence supports the explanation of a phenomenon.
Clear statement of expectations	State explicit expectations of activity or project requirements to allow students plan their work without being overwhelmed.
Close reading	Approaching content through systematic exploration to uncover layers of deeper meaning, understand a phenomenon, or solve a problem.
Culturally responsive instructions and assignments	Activities and materials in which students could contextualize themselves and make connections between their experiences and concepts
Direct instruction	Content is structured, organized and presented *by the teacher*; this includes identifying learning goals, providing materials and structure for activities, and assessing performance.
Discovery-/ Inquiry-based learning	Students construct knowledge, and often learning goals and assessments in the process of learning

Table 1 (continued).

Instructional strategy	Description
Driving question	Use of intentional questions to focus learning activities and promote inquiry in learning
Effective questioning	Use of questions to focus on critical aspects of content and introduce new concepts.
Evidence-based learning	Require students to use evidence to support the explanation of a phenomenon
Experiential learning	Conditions in which students learn from direct experience with materials, tangible or intangible, and by reflecting on their actions within the experience.
Exploring resources	Assembling, or providing access to, potentially relevant sources of information, demonstration, core ideas, crosscutting concepts, and domain specific practices.
Field trips/Field experiences	Experiences outside the bounds of classrooms
Focusing on critical learning content	Prioritizing critical aspects of content to heighten efficiency in learning.
Formative assessments	Providing actionable feedback on learning materials and experiences to adjust the instruction, assignments, and ongoing teaching and learning strategies as the instruction progresses.
Homework and practice	Independent, assigned work outside the classroom to help students improve skills and master the content they are learning.
Idea building	Students are encouraged by teachers to contribute to building ideas either with peers or supportive adults to build core disciplinary ideas or to test their ideas.
Identifying similarities and differences	Comparing and contrasting two items to encourage students to analyze content and to shift their focus from *learning about* to *figuring out*.
Integration of content areas	Applying the skills learned in one domain to another domain.
Journaling	Requiring students to write regularly within some aspect of the learning process, including writing about their reflections, visualizing their designs, collecting, and writing about data, and communicating their learning.
Lecture	The teacher presents new concepts and critical content, summarizes contrasting concepts, or resources, and provides critical information to students via exposition, sometimes aided by visual or other forms of representational support.
Modeling/ Online modeling	Demonstration of a skill or a new concept as students observe.
One-to-one teaching/ Conferencing	Teachers or other instructional personal work individually with a student in one or more ways; presenting and explaining material, discussing their learning problems, helping them with challenges unique to them and so on.
Online discussions/ Debate	Employing one or more forms of structured argumentation to encourage students to engage in research, think critically, and develop listening and oratory skills.
Peer collaboration	Students work in groups, each contributing substantively to a goal (e.g., discussing a problem and finding a solution; reviewing and organizing existing knowledge, filling in gaps in knowledge, brainstorming, developing investigation plans, discussing data interpretations, and engaging in discussions on how the evidence supports the explanation of a phenomenon).
Project-based learning	Structuring relevant, rigorous hands-on activities which generally culminate in a deliverable that demonstrate mastery of the learning goals.
Puzzle solving	Cooperative learning in which work in groups to explain a puzzling phenomenon in accordance with existing knowledge or solve a closed-ended problem.
Reading and writing across the curriculum	Integrating basic literacy skills into multiple subject areas to develop students' understanding across curricular domains.
Rubrics for assignments	Instructions and details of when and how students are expected to participate/perform, what satisfactory participation/performance looks like, laid out against the criteria for assignments.
Scaffolding student conversations	Providing support for the form and focus of student conversations. Scaffolding is typically withdrawn gradually as students perform more effectively.
Specific feedback	Teachers and/or peers respond to individual activities or interim/final performances, either direct performances or products which are the result of learning activities.
Structured instructions	Clear direction provided to students on how to set goals, monitor progress, and accomplish those goals.
Visualizing	This instructional approach allows students to clarify their understanding, do modeling activities, understand and write about data, and communicate their learning.

Note: Table interpreted from teacher reports by Self and National Academies of Sciences, Engineering, and Medicine (2020).

Teachers' Expertise

School districts established instructional routines and invested in digital platforms to facilitate online learning during COVID-19 pandemic (McLeod & Dulsky, 2021). However, many, if not most, teachers had to resort to emergency online teaching because technical personnel for online learning assistance in many school districts were not able to offer help to the huge pool of teachers and faculties needing it (Hodges et al., 2020). These teachers were on the front line, as described by Doucet et al. (2021), and they were out there in many ways alone with whatever capabilities and expertise they had at the time the pandemic commenced.

Adaptive expertise of teachers

Beyond knowledge and competencies however, teachers are acknowledged to require, in addition, the use of adaptive expertise, first conceptualized by Hatano and Inagaki (1986). Bransford et al. (2005) explained adaptive expertise as meaningful knowledge which is organized in such a way that the individual holding it knows "when, how and why certain knowledge is relevant in a certain situation" (Drijver, 2021, p. 6).

Valuing teachers' expertise

Research shows that valuing teacher voices could improve teaching practices and student achievement in schools (Darling-Hammond, 1985). While Darling-Hammond (1985) observed that the actual value placed on teacher knowledge and expertise may depend on the lengths to which policymakers and school administration go to heed teachers when they express their concerns about instruction, students and other educational reforms, almost three decades later McLaughlin (2021) reported that "the teachers in this study were angry about not being given recognition for what they do" (p. 34).

Relevance of teachers' adaptive expertise during COVID-19 pandemic

As discussed previously, pervasive disruption in all facets of teaching during the COVID-19 pandemic resulted in a complex and ill-structured teaching environment. This has been shown to have called upon teachers' adaptive expertise to innovate their practice in multiple ways (Drijver, 2021). Using the ERTE (Whittle et al., 2020) framework, which is not linear and does not prescribe particular strategies aimed at providing lens for presenting the findings and allowing for the appreciation of the expertise that participating teachers brought to bear on their decisions.

METHOD

Research Questions

This study is designed as a basic descriptive study (Merriam, 2002; Merriam & Tisdell, 2015) using qualitative data collected through behavioral event interviews (BEIs) (Dias & Aylmer, 2016; Fernandez, 2006; McClelland, 1973, 1998). In conducting a basic qualitative study, I sought to explore how the study participants engaged with COVID-19 phenomenon, specifically with the focus on their teaching practice.

The following research questions guided the study:

RQ1: What instructional strategies do secondary school teachers report having used during emergency online learning during COVID-19 pandemic?

RQ2: What is the comparative success of these strategies according to the perspectives of the teachers?

Participants

Participation criteria

Participation criteria were consciously chosen in order to meet the aims of the study. The criteria for selecting participants for this study included:

(a) having taught K-12 secondary grades and

(b) online during COVID-19 pandemic.

Using this approach 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).

Participant recruitment

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 was 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.

Inclusion criteria and final number of participants: The participants were secondary teachers (grades 5–12; *secondary* as defined by the individual school district) in K-12 schools. Inclusion criteria were that:

1) the individual was a secondary classroom teacher; and
2) the individual had taught online during COVID-19 pandemic.

A total of 534 emails were sent to school principals and teachers out of which I was able to recruit three participants. From the references of two of these contacts I was able to obtain leads to three other participants. From the posts on social media one teacher responded and I was able to recruit them as well as one more participant through their reference. The total number of participants was five.

Participating teachers and institutions

For the privacy of the participants, I have used initials only to identify them, and general descriptors of location to identify the schools in which they taught.

Description of participants: The 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 inclusion criteria of teaching in secondary grades and teaching online during COVID-19 pandemic.

Teacher profiles

After completing member checking (discussed in detail later), I summarized teacher profiles which include the participants' demographic background and their COVID-19 teaching experiences. I used data from the following interview questions to support and present the teacher profiles:

Interview Q1: Would you be able to describe your previous and current work situation (during COVID-19 pandemic)?

Interview Q2: 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?

These profiles include not just basic demographic information but descriptions of the participants as people to allow readers to recognize and hear their voices. These profiles illuminate the context and the circumstances under which they were beginning to, and continuing to, teach online during COVID-19 pandemic.

JS (interviewed on January 6, 2022): JS was a teacher with 22 years' experience, the last 20 at a high school in a Northwestern state teaching computer science, including AP level CS, visual communications such as photography, Photoshop™, interior design, architecture, and video game design. JS looked tired during the interview and mentioned several times that their teaching load was heavy with six different classes. In addition to this teaching load, JS described a context of teaching during the pandemic as one in which students were struggling behaviorally during online classes (turning off their cameras, playing online games during synchronous sessions, disengaging from learning). Their school held class onsite some days later in the crisis during which more serious problems occurred including repeated bomb threats from a student who had difficulties at home and who had not yet met most of the teachers face to face during his first year at the school, as well as student to student threats of violence. JS associated these incidents with pandemic stresses

on students and spoke at length about the effects they had on them and having been drawn away from decisions about instructional strategies during this period by these frightening experiences.

CS (interviewed on January 6, 2022): CS had previously worked as a stockbroker and at the time of the interview had been a high school teacher of business law, personal finance and related topics for over 37 years, alternating between their current school and Department of Defense schools overseas, mostly in Germany. They said that they remembered thinking at the student move to online teaching that the current curriculum could in no way be covered online and they were nervous about what to do. So they prioritized some units over others, such as personal finance, one of the most important units, and asked the students what they would like to learn. This required changes to the assessments and grading, which CS reported had taken a lot of time and energy. There were also connectivity problems for CS; in one instance their internet connection went down in the middle of class, and they feared the session would disintegrate into chaos, but when their connection was restored they discovered that one of their best students had taken over and kept the instruction going. CS reported their perception that they had good rapport with their students.

VS (interviewed on January 16, 2022): VS had a master's degree in classical studies and was pursuing a doctoral degree. They had been working as a teacher for 13 years and one year in their current job, and their current job was interventionist for middle school grades in Math and English at a private Catholic school in a Midwestern state. 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 pulled out student groups throughout the day, four times a week, for math or for reading. They saw the students at least twice a day, and twice every week. As a parent, they mentioned understanding very deeply the conundrum that parents were in, and yet wishing that parents had been more understanding of the pandemic situation and where it left the school system. They mentioned time as a repeated issue with pandemic teaching.

SD (interviewed on January 16, 2022): SD had been teaching science and math at the junior and senior levels in a Midwestern state school for three years and had been a teacher for a total of seven years. They had schooling experience outside the U.S., giving them a unique perspective that came through in their interview responses. SD stated how difficult it was to understand in March 2020 that COVID-19 situation would ultimately become so big and serious and described that it was nerve-wracking for teachers who did not know how they were going to proceed. SD explained that many teachers, especially the older ones, had little or no knowledge of online teaching and noted that an early, although very short training was provided by the school district. Several times SD emphasized that the pandemic situation was one in which teachers did what they could because they simply had no other choice. SD used webinars extensively during COVID-19 pandemic as their school supported this.

JR (interviewed on January 17, 2022): Originally from Spain, JR was a bilingual teacher with 14 years' experience in a Midwestern state school teaching all middle grade subject areas, specializing in computers and technology. Having earned their college degrees online, including a recent master's degree in educational leadership, JR had a lot of experience in online learning and definite opinions about teacher's pay and how it should be commensurate with the amount of work they do, including at nights and on weekends. At the request of the state board of education, JR and another teacher had rewritten the state Spanish curriculum standards specifically for hybrid teaching during COVID-19 pandemic. When the district rolled out the plan for going online, however, JR found that they had chosen synchronous classes only, rather than the suggested one-to-one online sessions which would help teachers pay individual attention to each student. This was clearly frustrating for them.

Data Source

The data for this study were one-to-two-hour interviews collected from each participant.

Interview protocol

A behavioral event interview (BEI) of one to two hours was conducted with each participant. The BEI interview was developed using the critical incident technique (CIT) from Dias and Aylmer (2016), itself an adaptation from Flanagan (1954). The advantages claimed for using BEI are:

"(a) empirical identification of competencies beyond or different from those generated by the other data collection methods,

(b) precision about competencies,

(c) identification of algorithms,

(d) freedom from racial, gender, and cultural bias, and

(e) generation of data for assessment, training, and career pathing" (Spencer et al., 1994, pp. 98-99).

Analysis

Detailing the teachers' contexts and profiles

After reading and rereading the interviews, I created a brief profile of each teacher participating in the study. This allowed me to provide some glimpse of who they were as people, as teachers, as members of their own families and communities. I understood from their conversation that the instructional strategies they chose were not merely academic decisions but were chosen keeping the context of their students in mind. I see it as critical that readers understand the context from which they reported why and how they chose certain instructional strategies and how those worked out for them and their students.

Analysis method

The method of analysis for this descriptive study followed Yin (2016) to extract instructional strategies from the teachers' interviews and discover which they identified as more and less successful.

Yin (2016) stated that there are five phases for analyzing qualitative data. These phases are iterative, indicating that one could go back and forth between phases multiple times. The phases are:

1. Compiling
2. Disassembling
3. Reassembling
4. Interpreting
5. Concluding

For both the research questions, I followed a similar procedure adapted from Yin (2016), as described here. For each research question, I worked with relevant parts of transcripts that had elicited responses pertaining to each research question.

Compiling: I began the compiling stage (1) with sorting out the notes that I had made during the interviews with my participants and put them in some meaningful order. To do so I listened and re-listened to the recordings of my interviews and went over my notes several times and integrate all the information at my own pace.

Disassembling: In the disassembling phase (2), I broke down the data into smaller units of meaning, leaving out "ums" and the segments I used for context, but which did not touch directly on the research questions. Yin (2006) stated that data could be disassembled without coding them, essentially unitizing the data and creating a new set of analytical memos or notes.

Reassembling: Then I rearranged my unitized data during the reassembling process (3) into patterns. According to Yin (2006), these patterns may be broad or narrow, and in fact, as I was using a pre-existing frame for instructional strategies, the patterns I used were Potential Descriptions of Strategies, Explanations ("why"), Perceptions of Effectiveness, and Context (when portions of context description were intertwined with other statements). A given unit could be co-classified with more than one strategy because the teacher's description of it may have made it clear that a given strategy was a sub-strategy of another (Gibbons, 2020).

Interpreting: In the interpreting stage (4), I used low-level inference to identify strategies stated or implied by the respondents' statements as corresponding to strategies in **Table 2**, or as instructional strategies recognizable to me but not included in **Table 2**.

Table 2. Teacher participant demographics

Teacher	Educational background	Teacher training/license	Years teaching / Teaching secondary level	Years using tech for teaching	Current subject / Grade level	Technology available in classroom?
JS School 1	Master's in Education	Yes/ National board certification	2/22	20	CS and Visual Communications/ High school	Yes 1:1
CS School 2	Interdisciplinary Master's	Yes/ Social studies	7/32	32	Business/ Finance and Traffic Safety/ High school	Yes 1:1
VS School 3	Master's in Classical Studies; pursuing PhD	Yes/ Multiple subjects	4/1	14	English and Math Interventionist/ Middle school	Yes 1:1 (tablets are 1:2)
SD School 4	Bachelor's in Engineering	No	7/7	7	Science and Math/ High school	No
JR School 5	Bachelor's in Computer Engineering/ Master's in Educational Leadership	Yes/ Science and Spanish	14/9	14	Science and Spanish (Bilingual)/ Middle school	Yes 1:1 (tablets are 1:2)

Note: Teacher participant demographics including educational background, license status, years teaching/teaching at secondary level, current subject/grade level and technology available in their classrooms.

Concluding: Finally, in the concluding stage (5) I drew descriptive conclusions as they related to the ERTE (Whittle et al., 2020) framework (**Figure 1**), placing the actions of the teachers within that framework.

In **Table 3**, I detail an example which demonstrates the five phases of analysis, with one section of a one transcript from one participant. This partial transcript is from participant VS who was answering the question, 'What were the first actions and strategies that you remember employing and if you got time to plan then what were the actions and strategies you employed?'

Table 3. Five phases of initial data analysis

Phase	Explanation
Original transcript (excerpt)	'Okay, so what did I want to do in this situation? So I wanted to be able to reach all my kids and make sure that they were safe because a lot of my kids … My second priority was learning all the all the new platforms to help deal with with how I was going to reach the kids academically. So it wasn't for sure how what that was going to look like. But I was willing to learn because it was just something that I had to do. I didn't I didn't have a choice, you know, it wasn't a give or take. It was something that you had to do in order in order to move forward … In order to do it engage with the students I was trying to pick as I we try to do out of YouTube videos. The Khan Academy was another one it was more of like a visual visual. Way to says instead of me just teaching it. Sometimes I would have a whiteboard like a little whiteboard, and I would write on it and then have the students look at it, but that wasn't quite as, as engaging or whatever. So we would watch a lot of videos like BrainPOP was was a big one. For my lower level students. We watch any any videos that I could to kind of go over the concept and before I broke it down, and before we talked about it more in class. 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. Can you am I missing a part of the question?' (VS)
Phase 1: Compiling (compiling and reviewing my own notes)	- Wanted to reach out to all the students as a first response - Learning new technology - Names technology platforms used like whiteboards, khan academy, brain POP aligned with instructional strategies used

Table 3 (continued).

Phase	Explanation
Phase 2: Disassembling	'Okay, so [1] what did I want to do in this situation? So I wanted to be able to reach all my kids and [[2] make sure that they were safe because a lot of my kids … [3] My second priority was learning all the all the new platforms [4] to help deal with with how I was going to reach the kids academically. So [5] it wasn't for sure how what that was going to look like. But [6] I was willing to learn because [7] it was just something that I had to do. [8] I didn't I didn't have a choice, you know, [9] it wasn't a give or take. [10] It was something that you had to do in order in order to move forward … In [11] order to do it engage with the students [12] I was trying to pick as I we try to do out of YouTube videos. [13] The Khan Academy was another one [14] it was more of like a visual visual. [15] Way to says instead of me just teaching it. Sometimes [16] I would have a whiteboard like a little whiteboard, and [17] I would write on it and then have the students look at it, but [18] that wasn't quite as, as engaging or whatever. So [19] we would watch a lot of videos like [20] BrainPOP was was a big one. [21] For my lower level students. We watch any any videos that I could to kind of go over the concept and [22] before I broke it down, and before [23] we talked about it more in class. [24] Khan Academy was another one because especially with like math concepts, [25] 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. Can you am I missing a part of the question?' (VS)
Phase 3: Reassembling	**Strategies (Q1)** [12] I was trying to pick as I we try to do out of YouTube videos [15] Way to says instead of me just teaching it. [17] I would write on it and then have the students look at it, but [19] We would watch a lot of videos like [20] BrainPOP was was a big one [21.1] We watch any any videos that I could to kind of go over the concept [22] Before I broke it down, and before [23] We talked about it more in class does not align with any **Table 1** strategy. It is strategy for problem solving which providing a clear step-by-step explanation of the problem along with, wherever applicable, also sharing multiple ways of solving the same problem. [25] 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 **Why (Q1)** [11] Order to do it engage with the students [21] For my lower level students. [14] It was more of like a visual visual **Perception of effectiveness (Q2)** [18] That wasn't quite as engaging or whatever (referring to strategy of direct teaching which was needed to clarify concepts) **Context** [13] The Khan Academy was another one [16] I would have a whiteboard like a little whiteboard, and [24] Khan Academy was another one
Phase 4: Interpreting (low-inference)	[12, 15, 19, 20, 25] aligned with **Table 1** strategy of exploring resources, because VS was assembling, or providing access to, potentially relevant sources of information, which the students could use for demonstration, learning core ideas, crosscutting concepts, and domain specific practices.; strategy chosen in an effort to engage students. [17, 21.1] Aligned with **Table 1** strategy of direct teaching which was needed to clarify concepts. [22, 23] Strategy of focusing on critical learning content. This helped teachers to focus on critical aspects of the content to improve learning outcomes of the students with providing more resources for the students before they engaged in class discussions about the topic; strategy chosen in recognition that students are differently able and require different strategies to learn.

Table 3 (continued).

Phase	Explanation
Stage 5: Concluding	I drew descriptive conclusions as they related to the ERTE framework (**Figure 1**).
	[12, 15, 19, 20, 25] VS acted within two stages of the ERTE framework during this event: 1) within the Classify component by recognizing the constant of online access for their students and 2) within the Design component by choosing to use certain online resources only for their lower grade students.
	[17, 21.1] VS acted within one stage of the ERTE framework during this event: 1) within the Design component by designing a direct teaching units for conceptual topics, 2) within the Classify component by recognizing the constant of online access for their students; and, 3) within the Evaluate component by recognizing that the event was not successful as students did not find direct teaching quite engaging.
	[22, 23] VS acted within one stage of the ERTE framework during this event: 1) within the Design component as they decided to show students different methods to solve a problem to see which one suited them best.

Note: Adapted from Yin (2016). Five phases of initial data analysis for a segment of one interview; worked example (this excerpt was numbered separately from the full interview for the purpose of illustrating the analysis; later quotes from that interview were numbered differently).

Boundaries and Limitations

As with every research study, this one has been bounded in some specific ways, and is subject to several limitations.

Boundaries

In order to conduct this study efficiently and credibly, given the limitations on it, I bounded the study to an examination of instructional strategies used by the teacher participants, their reasons for using these strategies and perceptions of effectiveness.

Limitations

It is essential that I acknowledge the limitations of this study, the first of which is the interview response rate. 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 COVID-19, the disease creating the conditions of interest in the study, and I was able to complete interviews with only five.

FINDINGS

Instructional Strategies Used by Teacher Participants

The participant teachers reported using 15 of the strategies in **Table 2**, plus an additional three strategies I was able to identify which had not been included in the original table. **Table 4** shows the strategies used in the context of all strategies listed in **Table 1**. Next, I report on how and in what context the teachers used these strategies, and their comments on the effectiveness of these strategies. I also attempt to analyze how each instructional strategy relates to the components in the framework. Here we must keep in mind here that though instructional strategies used by the participant teachers were assessed against the ERTE (Whittle et al., 2020) framework, the teachers themselves were unaware about this framework and in no case did they use this framework in the design of their instructional strategies.

Several of the instructional strategies that have been collated under **Table 1** have been used by the participant teachers as they reported during the interview. Below is a representation of the findings of these strategies, how and what context the teachers used it in, and their comments on the effectiveness of these strategies. For purposes of brevity, I report in details about five strategies used.

Table 4. Instructional strategies used by teachers

Instructional strategy	Teachers using these strategies
Academic language/Vocabulary	
Activation of prior knowledge	
Adaptation to differing learning styles	
Brainstorming	
Clear statement of expectations	
Close reading	
Culturally responsive instructions and assignments	
Direct instruction	JS, VS, SD, and JR
Discovery-/Inquiry-based learning	JS
Driving question	
Effective questioning	
Evidence-based learning	
Experiential learning	
Exploring resources	JS, VS, and SD
Field trips/Field experiences	JS and CS
Focusing on critical learning content	JS, CS, and JR
Formative assessments	
Homework and practice	JS, CS, and VS
Idea building	
Identifying similarities and differences	
Integration of content areas	
Journaling	JS
Lecture	
Modeling/Online modeling	JS
One-to-one teaching/Conferencing	JS and JR
Online discussions/Debate	JS
Peer collaboration	JS
Project-based learning	JS
Puzzle solving	JS
Reading and writing across the curriculum	
Rubrics for assignments	
Scaffolding student conversations	
Specific feedback	
Structured instructions	JS
Visualizing	VS

Note: JS, CS, VS, SD, and JR are pseudonyms for the teachers.

Direct instruction

Direct instruction was used by four teacher participants, including JS, VS, SD, and JR. Each teacher participant used this strategy in a different manner. Using direct instruction as an instructional strategy means that the teachers have structured and organized the content according to the learning goals and have presented this content to the students. Direct instruction seems to be a popular option for teachers especially because students also need basic access to technology. Therefore, technology can be considered as a constant factor as it relates to the framework.

JS used to record videos for teaching content and for providing instructions on how to complete an assignment using the software from their lab that students had access to on their devices. JS said it was a useful strategy. JS acted within three stages of the ERTE (Whittle et al., 2020) framework during this event:

1) within the Inquiry component by observing that earlier students did not have access to the specific lab software which they later had access to,

2) within the Classify component by recognizing the constant of online access for their students, and

3) within the Design component by revising their lesson plans and creating video-recorded instructions for their students for using the lab software when they had access to it.

VS and SD both used whiteboards, both digital and non-digital as a tool to deliver direct instructions for their students for teaching conceptual subject areas like math and science. SD said, while focusing on the use

of whiteboard for lecture, 'Yes, absolutely. So taking a whiteboard digitally, applying it in the applying it in teaching methodology was very interesting.'

VS acted within one stage of the ERTE framework during this event:

1) within the Evaluate component by recognizing that the activity was not completely successful or unsuccessful.

SD acted within three stages of the ERTE framework during this event:

1) within the Evaluate component by recognizing that using webinars was successful with the students,

2) within the Classify component by recognizing the constant of online access for their students, and

3) within the Design component by designing learning units that would be taught through a webinar.

JR had initially planned their synchronous sessions with the students in a manner where each student had to log on for a mandatory direct teaching session of 15 minutes with JR. JR acted within three stages of the ERTE framework during this event:

1) within the Evaluate component by recognizing that the event was not successful in the synchronous mode,

2) within the Classify component by recognizing the constant of online access for their students and the variable that their students had specific needs, and

3) within the Design component by revising the asynchronous sessions into synchronous sessions according to the mandate of the school district and designing video recorded units of learning so that students could access them asynchronously.

Discovery-/Inquiry-based learning

One of the participant teachers, JS, reported using this strategy to allow students to construct their own knowledge in the process of learning.

Because this strategy may have required some prior planning and preparation, most teachers have not resorted to using it. In this strategy, technology is a variable component in the ERTE (Whittle et al., 2020) as students' home situations may have varied and thus access and bandwidth to participate in this instructional strategy may have been done either synchronously or asynchronously by students. JS used this strategy in their online teaching by arranging with volunteers from BP™ (British Petroleum) to conduct inquiry-based learning units for STEM activities which the students watched synchronously and participated in the activities from home. JS expressed, "So we tried to get a lot of tutoring in the afternoons with me or with the volunteers and I had students who had graduated so I had two students also …" JS acted within four stages of the ERTE (Whittle et al., 2020) framework during this event:

1) within the Inquiry component by observing that not all students had the materials and resources they needed to participate,

2) within the Evaluate component by recognizing that the event was not successful in the synchronous mode,

3) within the Classify component by recognizing the constant of online access for their students and the variable of resources available to each student, and

4) within the Design component by revising the activity so the volunteers recorded their sessions for students to watch asynchronously.

Exploring resources

Three of the participants teachers, JS, VS, and SD used this instructional strategy in leading their students in exploring and using various online and offline learning resources where they do actions like click on different links, use online tools to supplement their learning or read materials provided to them. For students to explore the different learning resources provided by the teachers may have required more internet bandwidth and therefore in this strategy technology may be considered more as a variable component. VS stated that they were worried about internet access for all the students and said that

> "Well, first of all, had to make sure that the students had access to the internet, because that was another thing at the very beginning of the pandemic, that we weren't for sure that every student would get a device and not every student had internet at home. So, we had to figure that out. And those students who did not have it, I had to come up with packets. Well, what that's a big difference."

Other than specific resources stated by teachers, all three of the participant teachers were using digital platforms like MS Teams, Zoom, Canvas that students had to also navigate and use to progress their learning.

JS provided some online links to the students that they had to click on to find more information about certain content areas. JS acted within one stage of the ERTE (Whittle et al., 2020) framework during this event:

1) within the Classify component by recognizing the constant of online access for their students.

VS reported using resources like YouTube videos, Brain POP, or accessing Khan Academy for learning about conceptual topics for subject areas like math for topics like exponents, for example. VS acted within two stages of the ERTE framework during this event:

1) within the Classify component by recognizing the constant of online access for their students and the variable of resources available to each student and

2) within the Design component by designating and assembling separate resources like BrainPOP for the lower grade students.

SD made it almost mandatory for students to participate and learn from webinars. They stated clearly that their students enjoyed participating in webinars and gradually the number of students participating in these webinars continually increased. SD acted within two stages of the ERTE framework during this event:

1) within the Classify component by recognizing the constant of online access for their students and

2) within the Design component by using webinars as a learning platform to garner student engagement and attendance.

Field trips/Field experience

Though this instructional strategy is typically designed for out of the classroom 'field' experiences, during the limitations of COVID-19 pandemic, two of the participant teachers (JS and CS) adapted this strategy for their online classes.

JS arranged with volunteers from BP™ (British Petroleum) to make conduct project-based STEM activities which the students watched synchronously and participated in the activities from home. This instructional strategy required some amount of meticulous planning by the teachers and some amount of collaboration with other stakeholders and therefore overall may have provided variable learning experience to the students. JS acted within four stages of the ERTE (Whittle et al., 2020) framework during this event:

1) within the Inquiry component by observing that not all students had the materials and resources they needed to participate,

2) within the Evaluate component by recognizing that the event was not successful in the synchronous mode,

3) within the Classify component by recognizing the constant of online access for their students and the variable of resources available to each student, and

4) within the Design component by revising the activity so the volunteers recorded their sessions for students to watch asynchronously.

CS invited a guest speaker, the Chief of Bellingham police, into their online class to provide the students with what he said was as close an experience as possible to a field trip. Prior to the visit, the students had already typed out their questions in a Google Doc which had been provided through MS Teams and CS reported that the questions and answers from the Chief were going great. CS acted within three stages of the ERTE framework during this event:

1) within the Evaluate component when they judged the Zoom bomber incident as wrecking the success of the activity,

2) within the Design component both before and after the incident (first in setting up the Google Doc in MS Teams; then in instituting protocols for joining the Team sessions, and

3) the Classify component when they judged access to Teams and Google docs, and the protocol function in Zoom as constant for all the students.

Focusing on critical learning content

Three of the participant teachers, JS, CS, JR, reported using this instructional strategy. Focusing on critical learning content includes prioritizing critical aspects of content to heighten efficiency in learning. Considering the ERTE (Whittle et al., 2020) framework, for this instructional strategy to have provided optimal learning experience to the students, in my assessment may have required some learning support at home from other family members. Therefore, overall, this might be considered a more variable experience to students.

JS changed their curriculum, thinking about what the students would be able to learn effectively and complete curricular content. JS acted within three stages of the ERTE (Whittle et al., 2020) framework during this event:

1) within the Classify component by recognizing the constant of online access for their students and the access to the specific lab software,

2) within the Inquiry component as they changed their lesson plans and teaching content more than once based on whether the students had access to specific software from the lab, and

3) the Design component by revising the lesson plans based on the whether or not all the students had access to the lab specific software.

CS also had to change their curriculum to focus on which parts of the curriculum were more important than other parts. They explicitly mentioned, "Okay well in personal finance, I kind of prioritized which units that I felt would be the most important and then I went to the class and I said, Okay, what would you like to study?" They further mentioned that they had to compromise on teaching units like insurance that they believed were important but had to cut way back. But overall, they felt that this strategy was more or less effective with some students CS acted within three stages of the ERTE framework during this event:

1) within the Inquire component when they inquired about student preferences,

2) within the Design component as they still included some units that students did not vote for like, insurance, because they thought it was a central part of the curriculum, and

3) within the Evaluate when they assessed that in spite of some difficulties in changing the curriculum it was somewhat effective for some students because of the rapport they had with the students.

JR changed their curriculum to align with the new certification requirements that their school district followed during COVID-19 pandemic. They did not make any specific comments on whether the strategy was effective. JR acted within one stage of the ERTE framework during this event:

1) within the Design component by revising the curriculum and the rubrics for grading so that they aligned with each other.

DISCUSSION AND CONCLUSION

Discussion

During COVID-19 pandemic, teachers leveraged an online modality for the continuance of instruction when many school districts decided to shift to online education to continue providing instruction to their students (McLeod & Dulsky, 2021). However, the participant teachers did not have the time or expertise to plan for teaching online. Even so, during their interviews, they described the instructional strategies that they might have used during their ERT.

Within each of the strategies used, I was able to analyze how the participant teachers worked within the elements of the ERTE framework (Whittle et al., 2020) by attending to their narratives regarding these strategies. In the ERTE framework, Whittle et al. (2020) described a complex and iterative non-linear process. Within this framework, teachers needed to approach the process of selecting and implanting their

instructional strategies by closely inquiring into teacher and student circumstances, classifying available student resources, designing teaching plans aligned with these resources, and finally evaluating the remote teaching experiences. It was clear to me that the participant teachers demonstrated that using these strategies was well thoughtful within the timeframe. Moreover, the purpose of using these strategies was also mostly clear to them.

Participant teachers said that some of the instructional strategies they used worked well, and some did not turn out to be as effective as they hoped they would be. However, they also stated, that even if some strategies did not play out as planned due to several reasons like lack of resources or zoom bombing, students enjoyed those activities, participated, and engaged in them. The participant teachers in this study expressed that they recognized the challenges that their students faced within the evaluation part of the ERTE framework (Whittle et al., 2020). The ERTE framework was initially informed by a small number of teachers, as acknowledged by Whittle et al. (2020). In this regard, this study underscores the validity of the elements of the framework while allowing the understanding of the participating teachers as acting as intentionally as possible while working quickly in response to their situation. Given what they said about evaluating the instructional strategies they used, it looks as though they had at least as much focus on student well-being and engagement as they did on instructional outcomes. In fact, they barely mentioned instructional outcomes at all.

The disruption in all facets of teaching during COVID-19 pandemic resulted in a complex and ill-structured teaching environment. This has been shown to have called upon teachers' adaptive expertise to innovate their practice in multiple ways (Drijver, 2021). The participant teachers did not use the term 'adaptive expertise,' in their descriptions but, it was clear from their interviews that they did draw upon their adaptive expertise. They used their known instructional strategies in this new context by adapting them as they felt was needed for that moment to address issues like clarifying concepts during teaching online, increasing student engagement, or making it possible for students to have field learning experiences.

Implications for Practice

According to this study, teachers gained meaningful experience while teaching online during COVID-19 pandemic especially, in considering student resources, which are constants and variables and making instructional decisions based on those resources. For future research, it could be beneficial to examine teachers' thought process through the ERTE (Whittle et al., 2020) framework lens. It would be worthwhile to ask teachers if they think using the ERTE framework in face-to-face classes could be beneficial or might have certain drawbacks when designing instructional strategies. Because of the unplanned and hurried manner in which teachers had to transition to ERT (Hodges et al., 2020), they might have not moved forward with a positive impression of teaching online. The intense activities represented within the ERTE (Whittle et al., 2020) framework might also have given the teachers an understanding that starting with an intentional and careful planning of learning activities is significant because planning within one ERTE component definitely impacts the other components.

The study revealed that professional development of teachers is important. But it is not enough to say that teachers are always in need of constant professional development opportunities. It is equally imperative to assess how these future opportunities might impact them. Currently, professional development activities have changed, as COVID-19 pandemic changed people, their professional lives, and identities (Kaden, 2020). Given that some teachers had not experienced teaching online before the pandemic, various professional development activities have allowed them to figure out many facets of online teaching on their own, making them more focused about their professional development needs.

Recommendations for Research

This study covers instructional strategies teachers used to provide education to their students as told within their contextualized stories. To arrive at a more holistic understanding, however, more research is needed to document and understand the reception of these instructional strategies and students' perceptions of the teachers' instructional actions. Research is also needed to understand students' perceptions of teachers' normal instructional planning and planning within ERTE (Whittle et al., 2020) framework. Future professional development should acknowledge some learning, and possibly some mislearning, that came out of the pandemic.

In the contextual parts of the interviews with the participant teachers, they expressed that they expected more solidarity and understanding from the parent community. This move might create an opportunity for further investigation into the role of the parent community in teaching and learning online during COVID-19 pandemic. The process and impact of communication between the teachers and the parent community. Therefore, it would be reasonable to investigate further the role of the parent community during the online teaching and learning phase amidst COVID-19 pandemic.

Practice-oriented research is needed into how teaching online during COVID-19 pandemic might have left teachers with new understandings, potentially changing their starting point in relation to technology use and establishing new habits regarding the way they chose instructional strategies. Exploring strategies could further the understanding of online K-12 teaching that researchers understood to be lacking prior to the pandemic. That is, it should not be assumed that all ERT (Hodges et al., 2020) was ineffective, or that ERT did not result in any promising strategies.

It might be valuable in the future to ask teachers about the intensive work within the ERTE (Whittle et al., 2020) framework that might have changed their perceptions of themselves as teachers who could respond to the classroom and instructional needs of their students. The fact that the participant teachers reported strategies not included among those found in the literature indicates there might still be room to investigate further by asking in-practice teachers questions like what in-person instructional strategies they use in their classrooms currently.

As a researcher, some specific questions that arose for me for future research could be explicated in the following manner:

- What instructional strategies have teachers implemented in their classroom teaching post-pandemic that they have brought back from their online teaching experience during the COVID-19 pandemic and why?
- How do students perceive the effectiveness of these instructional strategies?
- How do students expect that themselves and the teachers use technology more effectively for the success of classroom instructional strategies?
- Do K-12 teachers and students perceive that digital divide has closed or widened post the COVID-19 pandemic? Why?
- How do parents perceive their involvement in their students' online education during the COVID-19 pandemic?
- How do parents think they can be more involved in their students' use of technology for their educational purposes?

Some methodological approaches in collecting data on the above research questions could be surveys, semi-structured interviews, and group discussions while more of narrative analyses could be used to analyze the data. This will seek to contextualize the narration of the research participant as contextualized stories, much like the contextualized stories of the teacher participants used in this study. This will serve one main purpose of maintaining continuity in the stories during and post the COVID-19 pandemic. Allowing participants to the opportunity to describe their thoughts will allow for more complex and complete data. Then the individual narratives of the research participants could be used as data that can be coded and into emerging themes. My research design would most probably include inductive coding, but it would be a critical attempt so that I do not lose any valuable data during the data organization process.

Though these were my initial thoughts on methodological approaches and research design on future studies that continue from this current research study, I have made certain changes and am now currently waiting for IRB approval for the next study. In the meantime I have already conducted a visit to Mexico as a site visit as I aim to conduct the future study as a holistic international study that will attempt to present a more robust and global perspective of teachers design instructional strategies by imbibing their learning during the COVID-19 pandemic, and how students and their parent communities view these strategies.

Conclusion

This study invited teachers to tell their stories about teaching during COVID-19 pandemic. By themselves, the teachers selected memorable incidents for context and described the instructional strategies they knew, versus choosing those they used from a supplied list. Through this aspect, I was able to identify not only the strategies they used but also how actively they engaged in inquiring, classifying, designing, and evaluating components of the ERTE (Whittle et al., 2020) framework. The study revealed adaptive expertise (Drijver, 2021) is essential during a very difficult situation. Hopefully, further research would be undertaken on teachers' COVID-19 pandemic experience and lessons that could be learned from different studies surrounding K-12 face-to-face and online teaching.

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