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EMERGENCY REMOTE TEACHING: EXPLORING CALIFORNIA ELEMENTARY
TEACHERS' EXPERIENCES DURING COVID-19

By

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A DISSERTATION IN PRACTICE

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Abstract

The purpose of this qualitative phenomenological study was to learn about the experiences of ten California elementary teachers engaged in emergency remote teaching (ERT) during the Covid-19 pandemic. This study examines previous ERT events from around the world as well as emerging literature about the Covid-19 ERT event. Using iterative thematic inquiry (ITI), this study explores the themes of cognitive fatigue, technical agility, communication, and educational benefit. In their own compelling words, teachers described the physical, emotional, and psychological toll that teaching during Covid-19 took on them. They explain what worked and what did not work in terms of technology, communication, pedagogy, and student success. Teachers also discussed what they needed from leadership, parents, and each other that would have helped them navigate ERT more successfully. The aim of this study was to create a customizable ERT blueprint for schools and/or districts that would help educators move swiftly and efficiently to ERT when necessary. The blueprint proposed in this study takes into account the experiences of ten California elementary teachers and provides guiding questions to leaders as they prepare for future school closures.

Keywords: elementary, emergency remote teaching (ERT), Covid-19, teacher experiences with ERT, online learning, education technology

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This is not the dissertation I set out to write in the fall of 2019. My original research proposal was one tiny casualty of the Covid-19 pandemic that has changed our world. Shifting research gears while also living and teaching through Covid-19 was no easy task. It required the guidance and support of more people than I will be able to acknowledge here.

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Table of Contents

	Page
Abstract	iii
Acknowledgements	iv
List of Tables	xi
List of Figures	xii
CHAPTER ONE: INTRODUCTION	1
Statement of the Problem	1
Purpose of the Study	3
Research Questions	4
Aim of the Study	4
Definition of Relevant Terms	5
Methodology Overview	7
Delimitations, Limitations, and Personal Biases	8
Reflections of the Scholar Practitioner	10
Summary	11
CHAPTER TWO: LITERATURE REVIEW	12
Definitions	12
Technology Integration	13
Blended Learning	13

Online Learning.....	14
Emergency Remote Teaching (ERT)	15
A Brief History of Online Learning.....	15
Education Technology Frameworks.....	16
The SAMR Model	17
The TPACK Model	19
The TDC Framework.....	20
Attitudes and Abilities	23
Acceptance of Educational Technology.....	23
Resistance to Change	25
Suggestions for Implementing Technology Innovations	26
Professional Development.....	27
Necessary Components for Implementation	27
Online Course Design.....	28
Teacher Preparation Programs.....	28
National Standards for Quality Online Teaching	29
ERT During Natural Disasters	29
Hurricanes Katrina and Rita.....	30
Canterbury Earthquakes	31
Hurricane Harvey	32

ERT During Covid-19.....	33
Support for Teachers	35
Support for Students.....	36
Common Themes	36
Communication.....	36
Relationships & Mental Health.....	38
Professional Development.....	39
Assessment	40
Planning.....	41
Summary	42
CHAPTER THREE: METHODOLOGY	43
Research Questions.....	43
Method	43
Research Design Overview	44
Participants	45
Data Collection.....	46
Data Collection Procedures	46
Data Collection Tools	47
Data Analysis	48
Methodological Integrity	50

Ethical Considerations.....	51
Summary	51
CHAPTER FOUR: RESULTS AND FINDINGS	52
Results.....	52
Research Question 1	54
Cognitive Fatigue	55
Lack of Technological Agility.....	59
Limited Educational Benefit.....	63
Increased Communication	66
Research Question 2.....	76
Technology Training	77
Online Learning Pedagogy	79
Consistent Communication.....	84
Mental Health Supports	85
Findings.....	87
Summary	88
Aim Statement	90
Proposed Solution	90
Evidence that Supports the Solution	91
Evidence for the Infrastructure Section	93

Evidence for the Programs Section	94
Evidence for the Communication Section	95
Evidence for the School Schedule Section	95
Summary of Evidence	96
Implementation of the Proposed Solution.....	96
Factors and Stakeholders Related to the Implementation of the Solution	96
Timeline for Implementation of the Solution	97
Evaluating the Outcome of Implementing the Solution	98
Implications.....	99
Practical Implications	99
Implications for Future Research	99
Implications for Leadership Theory and Practice	100
Summary of the Dissertation in Practice	102
References.....	105
Appendix A.....	127
Appendix B	128
Appendix C	130
Appendix D.....	131
Appendix E	132
Appendix F.....	133

List of Tables

Table 1. Research Participant School Community Details	533
Table 2. Research Participant Years of Experience	544
Table 3. Grades Taught by Participants During 2019-20 and 2020-21 School Years....	544

List of Figures

Figure 1. Three-tier Representation of Progressive Uses of Educational Technology	14
Figure 2. SAMR Model	18
Figure 3. TPACK Model.....	19
Figure 4. TDC Framework.....	22

CHAPTER ONE: INTRODUCTION

In March 2020, schools across the United States had to close their doors to help contain the spread of the novel coronavirus, known as Covid-19. Educators made rapid shifts from traditional, in-person teaching to remote, online teaching. Educators hoped they would be able to open school doors in a matter of weeks, but as the pandemic increased in severity, teachers, students, and parents faced an indeterminate timeline of disruption. Educators scurried to address the needs of teachers who had little or no experience with teaching online (Ferdig et al., 2020; Hodges et al., 2020).

Statement of the Problem

The problem addressed in this study is teachers' lack of preparedness for an immediate switch to online learning due to the Covid-19 pandemic. The sudden closure of in-person learning resulted in confusion and loss of learning, with some schools and districts taking several weeks to begin teaching in an online environment (Burke & Fensterwald, 2020; Sacramento City Unified School District, 2020c; San Francisco Unified School District, 2020; Taketa, 2020). This study investigates how to transition elementary schools rapidly and efficiently from traditional, in-person teaching to remote, online teaching. The Covid-19 pandemic required a transition on a global scale in March 2020, and online teaching continued even a year after schools initially closed their doors. Teachers were required to make rapid and sweeping changes to the way they provided educational services. Many required immediate and sustained professional development in educational technology use as well as online pedagogy (Ferdig et al., 2020; Hartshorne et al., 2020; Hodges et al., 2020). This study provides insight and perspective in preparation for the next, as yet unknown, ERT event.

Teachers are known to be hesitant to pedagogical change, particularly when it comes to technology integration (Hew & Brush, 2007; Maskit, 2011). There are significant differences between integrating technology in an in-person class and using technology to deliver 100% of an educational program (Hodges et al., 2020), making the current educational climate even more challenging for teachers hesitant to technological and pedagogical change. Without necessary skills in technology, learning management systems (LMS), and online-learning pedagogy, teachers will struggle to provide engaging and rich learning experiences for students in a virtual environment. (Huh & Reigeluth, 2018; Oliver et al., 2010; Pierce & James-Ward, 2021).

The forced switch to teaching in a virtual environment necessitated a definitional distinction between the terms “online education” and “emergency remote teaching (ERT)” (Hodges et al., 2020). The former implies a course of instruction that was designed to delivered online, while the latter refers to teaching that was suddenly and unexpectedly switched from in-person to online. Future pandemics, emergencies, and natural disasters may precipitate more ERT events. It behooves districts, schools, and individual teachers to be prepared to make a swift transition to 100% ERT. Continuously developing educational technology and new insights into online pedagogy mean any kind of transition plan will need to be dynamic in nature as opposed to a static. In other words, any plans created for future emergency transitions to online learning will need to account for technology and pedagogy yet unknown. Additionally, schools will require specific and up-to-date information about students’ off-campus internet and device accessibility. Careful examination of the experiences of teachers who are living and working through the Covid-19 pandemic will provide insight into what an ERT plan should include.

Literature addressing the sudden switch of elementary schools to ERT during the current pandemic is limited due to the newness of the phenomenon. One compendium of brief, hastily crafted articles addressing U.S. K-12 schools was collected and published in the first quarter of 2020 (Ferdig et al., 2020). Most other domestic Covid-19-related education literature addresses the needs of higher education students and faculty (N. Johnson et al., 2020). Little research has been published regarding the specific Covid-19-related teaching experiences of elementary teachers in the State of California.

Purpose of the Study

The purpose of this qualitative, interpretive phenomenological study was to explore the lived experiences of elementary teachers in California who switched to ERT during the Covid-19 pandemic. That knowledge was used to create a dynamic, customizable blueprint for schools in preparation for the next ERT event. Semi-structured one-on-one interviews with elementary school teachers provided data about their experiences with ERT. Understanding the challenges teachers faced and the lessons they have learned so far, both in terms of personal and professional readiness for ERT, informed the creation of a blueprint for future ERT events. Data points collected include information related to teacher familiarity with and frequency of use of educational technology prior to the Covid-19 pandemic as well as teacher perspectives on school- or district-provided professional development on ERT. Additionally, teachers were asked what infrastructure and training would have been helpful prior to engaging in ERT and how their current experiences have prepared them for an ERT event in the future. This data was combined with information from extent Covid-19-related ERT literature and studies of ERT after natural disasters. Together, teacher experiences and literature

provided a more comprehensive picture of the future of ERT and how better to prepare for these inevitable occurrences.

Research Questions

The following research questions guided this qualitative study:

RQ1. What are the lived experiences of elementary teachers in California in relation to technology use and application of online pedagogy while implementing ERT during the Covid-19 pandemic?

RQ2. What supports do elementary teachers in California believe will help them deliver rich learning experiences to their students in an ERT environment?

Aim of the Study

The aim of this study is to help teachers, schools, and districts prepare for the next ERT event by understanding the experiences and needs of teachers in the current Covid-19 pandemic. This study articulates the needs identified by California elementary teachers as necessary to their delivery of rich learning experiences for students during ERT. It reviews the technological and pedagogical training teachers received at the start of the Covid-19 ERT event with the goal of identifying gaps in teacher knowledge. Literature published prior to the Covid-19 pandemic revealed wide disparities among teachers in terms of their educational technology integration (Tallvid, 2016; Vrasidas, 2015; Willis et al., 2019). Given that elementary teachers had provided ERT for more than one entire school year at the time of this study, it is expected that some disparities between teachers' use of certain technologies, such as video conferencing and the use of learning management systems, have been significantly reduced. Understanding how

technology-reluctant teachers were able to learn and implement those technologies could be useful when designing future ERT training.

New research into self-described transformational and innovative high schools indicate more permanent change to the public school system is imminent, particularly considering the 2020 shift to ERT (Pierce & James-Ward, 2021). Underpinning that change is technology integration that goes beyond mere substitution of in-person content delivery to online delivery (Pierce & James-Ward, 2021); change must move into the augmentation, modification, and redefinition of education (Caukin & Trail, 2019). This study helps articulate the next steps in education evolution by understanding teachers' current experiences. Their struggles, lessons learned, and triumphs can help inform the educational community and stakeholders about how to prepare for the future of education, including the immediate future as ongoing responses to the Covid-19 pandemic are in constant flux. Knowing the mindset of teachers during the Covid-19 ERT event should help ensure future offerings and other supports can be delivered in an efficient, effective, and intentional manner as soon as possible. Additionally, education leaders can use the results of this study to plan for future emergency situations that necessitate ERT.

Definition of Relevant Terms

The following terms are used operationally within this study.

Blended learning: Blended learning involves some in-person teaching and some online learning. Some blended-learning programs are split so that 50% of instruction is in person and 50% is online. Others have varying degrees of in-person-to-online ratios (Moskal et al., 2013).

Elementary school: In California, elementary school includes grades K-6 (California Department of Education, n.d.).

Emergency Remote Teaching (ERT): Emergency Remote Teaching is teaching that is shifted from an in-person or blended-learning format to 100% online formats. It is distinguished from “online learning” in that it is not anticipated, is implemented immediately, and may be accompanied by minimum resources (Hodges et al., 2020)

Flipped classroom model: A flipped classroom model provides students with lesson content, such as lectures, online. It is intended to free up in-person classroom time for more interaction between teachers and/or peers as students interact with new content. Flipped classrooms are an example of technology integration (Hwang et al., 2015).

Learning Management System (LMS): Learning Management Systems are web-based applications that provide for the curation and delivery of educational content, experiences, and assessment. An LMS provides students and teachers with one portal for accessing educational content (Kimmons, 2015).

Online learning: Online learning is the intentional, planned delivery of educational content, experiences, and assessment via the internet. It is often used interchangeably with “online education,” “remote learning,” or “distance learning.”

Technology integration: Technology integration refers to the integration of technological devices and/or programs and applications to a traditional, in-person educational program delivery model. Flipped classroom models and use of computers are examples of technology integration (Schmidt & Ralph, 2016).

Methodology Overview

This study uses qualitative, interpretive phenomenological research practices, which are appropriate for studying the lived experiences of research participants (Babbie, 2017; Creswell & Poth, 2018). According to Creswell and Poth (2018), qualitative research is the study of a problem through an interpretive or theoretical framework. Qualitative researchers approach problems with a sensitivity to the people they are studying. Qualitative researchers collect data in participants' natural settings as much as possible, known as field research, analyzing the words and actions of participants (Babbie, 2017; Creswell & Poth, 2018). Since field research was extremely limited during the time of social distancing to curtail the spread of Covid-19, data for this study was collected primarily through interviews. Phenomenology is an appropriate approach to this qualitative study because it is the analysis of a common phenomenon lived by participants (Babbie, 2017; Creswell & Creswell, 2018; Creswell & Poth, 2018). In this case, that phenomenon is the sudden shift to online learning. This study employs interpretive phenomenology, which seeks to use findings in support of professional practices (Lopez & Willis, 2004). By using interpretive phenomenology, this study goes beyond merely describing teacher experiences (Lopez & Willis, 2004). Those experiences are analyzed and interpreted to provide meaningful solutions for teachers striving to best serve their students during ERT.

Snowball sampling through social media provided a pool of interested participants. Babbie (2017) defines snowball sampling as using a few known members of a community to contact and recruit additional, unknown members of the same community. In other words, teachers already connected through social media can reach

out to people in their own networks who fit the profile of desired respondents.

Participants were then purposefully sampled to reflect relatively equal numbers of California elementary school teachers. A total of 10 participants were interviewed, which provided data saturation (Creswell & Poth, 2018; Morgan & Nica, 2020).

Semi-structured interviews were conducted using online meeting platforms. Semi-structured interviews provide open-ended questions, allowing for participants to expound freely on the topic (B. L. Leech, 2002). Online meeting platforms were necessary to adhere to social distancing requirements mandated by the current pandemic. Interviews were conducted one-on-one and in real time using both audio and video features of online meeting platforms. In this way, I was able to take field notes on interview participants' body language and facial expressions available via the medium while also audio- and video-recording verbal responses. Transcripts of interviews were made using MAXQDA web-based software and are stored in a secure cloud environment. Data was analyzed using iterative thematic inquiry (Morgan & Nica, 2020).

Delimitations, Limitations, and Personal Biases

Delimitations of this study apply to population. Participants were limited to currently practicing elementary school teachers in California. It is essential to the aim of this study that research includes perspectives of teachers who experienced both the rapid transition to ERT in March 2020 as well as the continuation of online learning in the 2020-21 school year. Both public- and private-school teachers were included, though private school teachers constituted just 10% of the total number of research participants. The reason for this delimitation is private-school students in grades K-12 account for only about 7% of California's student enrollment, according to the most recently

available statistics (California Department of Education, 2020b). Additionally, while no specific statewide data could be found, Los Angeles Unified School District reported that within one week of switching to ERT, 84% of its high school students were already engaged in online learning, compared to 18% of elementary students (Burke & Fensterwald, 2020). This massive discrepancy indicates elementary teachers and students struggled more with adapting to ERT. Therefore, this study is limited to elementary school teachers and their unique experiences teaching younger students.

Limitations relate to the mode of data collection and the nature of qualitative research. Due to pandemic-related social restrictions at the time this research was conducted, data collection was limited to virtual interviews. Observations of teachers and other field work were not attempted because of social distance requirements in place to help prevent the spread of Covid-19. Additional limitations were imposed by the use of virtual interviews, which curtail observations of body language. Because this study is qualitative in nature and will use the voluntarily described experiences of just 10 teachers out of a population of tens of thousands, results cannot be generalized as readily as a quantitative study employing a larger sample size (Babbie, 2017)

As a K-8 educator, I was personally involved in the rapid transition to ERT from March through June 2020. I experienced the switch both as a teacher of middle-school math and an administrator responsible for leading K-8 teachers throughout the massive pedagogical shifts. To reduce bias, I used iterative thematic inquiry (ITI), which relies heavily on concurrent thematic analysis and the use of reflexive journaling through memo writing (Morgan & Nica, 2020).

Reflections of the Scholar Practitioner

Because I am an educator, I am acutely aware of my need to continually check my biases. I have had my own experiences with the transition to ERT during the Covid-19 pandemic, and while some of my experiences may be similar to participants' experiences, I need to remember that I am not a member of the specific population I have chosen to study. I was a private-school teacher with only one class of middle-school, special-needs math students. Additionally, my perception of teacher needs in my capacity as a K-8 private-school administrator are not necessarily in line with what public-school elementary teachers perceive as their needs. (Creswell & Poth, 2018; Tufford & Newman, 2012). I employed ITI to reduce my bias. ITI requires researchers to declare their biases by writing out expected thematic outcomes prior to conducting any data collection, similar to creating hypotheses (Morgan & Nica, 2020). This is distinct from bracketing, in which researchers document their personal experiences and beliefs around the phenomenon being studied (Tufford & Newman, 2012). Iterative thematic inquiry requires researchers to work with their biases by using them as a starting point for learning. ITI has roots in pragmatism in which beliefs change, rather than emerge, as data is analyzed (Morgan & Nica, 2020). As the researcher interacts with the data, predicted thematic outcomes will change. Memos are written throughout data analysis to document changes and their rationale found in the data. Thus, bias is constantly on display, and changes to those biases based on data are documented (Morgan & Nica, 2020).

The Covid-19 pandemic appears to be ebbing somewhat, and schools have returned to in-person learning. I desire to be a help to my colleagues in the field who are now acutely aware of the possibility of future ERT events. I wanted to know what

teachers went through and how they believed they could best be assisted during the recent time of uncertainty. I also wanted to provide a road map for the future. We will likely experience additional times that require ERT; I want to make sure we provide ERT that is substantive and effective for educating our elementary students.

Summary

This study was designed to provide an understanding of the lived experiences of California elementary school teachers during the Covid-19 pandemic and to articulate the needs of said teachers as they continue to implement ERT. Qualitative interpretive phenomenology was employed in the form of semi-structure interviews with participants selected through snowball sampling. The following literature review provides information about teacher adoption of technology prior to this pandemic. It also includes some of the limited information available on Covid-19 responses in the field of education.

CHAPTER TWO: LITERATURE REVIEW

In March 2020, schools across the United States closed their doors to help contain the spread of Covid-19. Many school districts and building-level administrators required teachers to shift to 100% online delivery of educational services. Teachers unfamiliar with online education technology were given crash courses in online learning, and many teachers found the shift in educational delivery extremely difficult (Ferdig et al., 2020). To better understand the needs of teachers during the current Covid-19 pandemic, it is necessary to review the rise of educational technology and its integration into classrooms. This chapter begins by defining critical terms related to education technology and trends. A brief review of online learning's history is conducted, including an exploration of teacher and student attitudes toward educational technology adoption. Past experiences of emergency remote teaching (ERT) during natural disasters are then investigated. Finally, the chapter concludes with a survey of current efforts to support teachers' continued use of online service delivery models during this episode of ERT.

Definitions

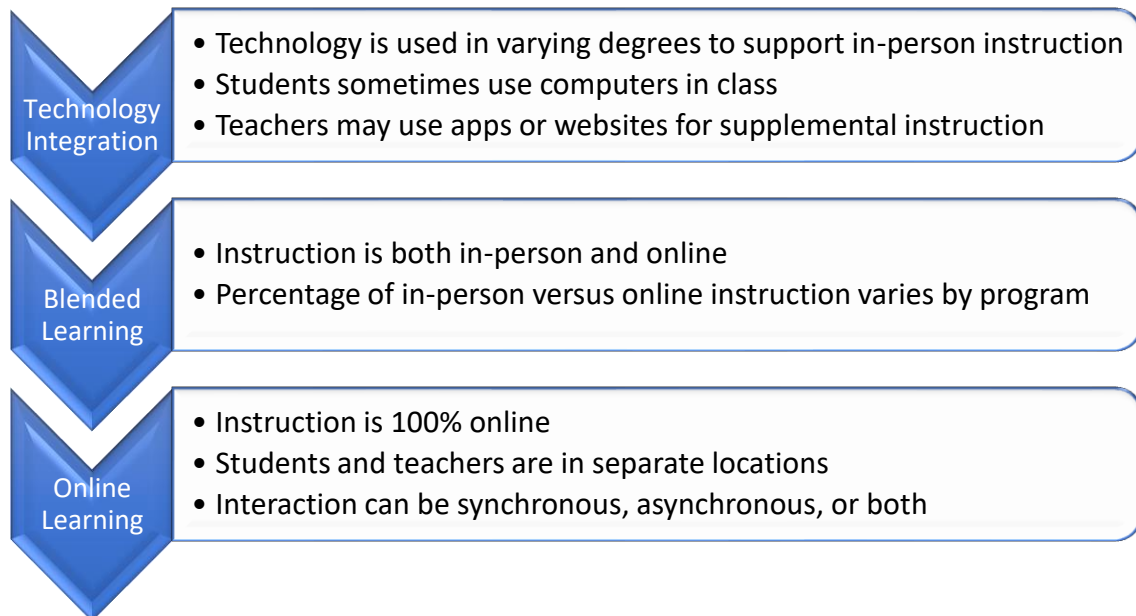
Literature regarding technology use in educational settings is abundant (Admiraal et al., 2017; Brown & Keep, 2018; F. Liu et al., 2017; Neufeld & Delcore, 2018; Scherer et al., 2019; Zaza & Neiterman, 2019). Because technology is in a constant state of change, associated literature is regularly emerging. The number and frequency of research articles on educational technology and its uses and can be a source of frustration for inquirers seeking common, static definitions (Moskal et al., 2013). Figure 1 helps synthesize extant literature, providing a three-tier representation of progressive uses of educational technology.

Technology Integration

For the purposes of this paper, technology integration is the use of technology to enhance in-person instruction (F. Liu et al., 2017). An example of technology integration can include students using classroom computers for web-based, supplemental instruction after completing assigned tasks. Other examples can include students using word processing programs to complete written assignments and creating multimedia presentations to demonstrate learning.

Blended Learning

The definition of blended learning has evolved over time (Cronje, 2020; Singh & Thurman, 2019). Earlier in its use, blended learning was defined as an integration of technology in the traditional, in-person classroom environments (Friesen, 2012; Lalima & Lata Dangwal, 2017). For the purposes of this study, blended learning is understood as a combination of in-person and remote, online instruction, the ratio of which is decided by teachers and/or school administration (Lalima & Lata Dangwal, 2017; Moskal et al., 2013).

Figure 1*Three-tier Representation of Progressive Uses of Educational Technology***Online Learning**

There are many terms used in reference to the delivery of education via the internet and in which students and teachers are not located in the same physical space. They can include, but are not limited to, “online learning,” “distance education,” and “e-learning” (Singh & Thurman, 2019). This paper will use the term “online learning” in reference to teaching and learning that takes place via the internet, either synchronously or asynchronously, and where students and teachers are in different physical locations. The key to understanding the difference between online learning and technology integration is that online learning occurs remotely; the teacher and student are in different locations (Lalima & Lata Dangwal, 2017). Online learning can take three different forms: synchronous, asynchronous, or a combination of synchronous and asynchronous. Synchronous online learning takes place in real time using web-based video conferencing, chat rooms, or any other live interaction between students and teachers.

Asynchronous online learning does not happen in real time but relies on individual interaction with course content in the users' own time (Burdina et al., 2019; Oztok et al., 2013). A learning management system (LMS) is often used to curate asynchronous learning materials (R. Kimmons, 2015).

Emergency Remote Teaching (ERT)

Online learning and its accompanying synonyms imply an intentional, systematic development of curricula intended to be delivered through various means using the internet. Means can include learning management systems, email, social media, and websites. Content from instructors and students is exchanged online. Not to be confused with online learning and its synonyms, "emergency remote teaching" (ERT) refers to the sudden and unplanned shift from in-person delivery to online delivery of educational services (Hodges et al., 2020). The Covid-19 pandemic necessitated the switch to ERT in March 2020 to reduce the spread of the virus.

A Brief History of Online Learning

While online learning has increased among K-12 students, virtual schools account for just one-half of one percent of all public K-12 schools in the U.S. prior to the Covid-19 pandemic (U.S. Department of Education, 2019). Yet, delivering educational programs via the internet is not a new phenomenon. Higher education has employed online learning with increasing frequency over the last three decades (Barbour & Harrison, 2016; McMurray, 2007; Tallvid, 2016). The first fully online courses were offered in 1981 for non-credit executive education purposes (Harasim, 2000). Those courses were preceded by advances in distance learning, which were commonly referred

to in the 19th and 20th Centuries as “correspondence courses.” By the mid-1990s, the widespread advent of the internet gave rise to online learning (Perry & Pilati, 2011).

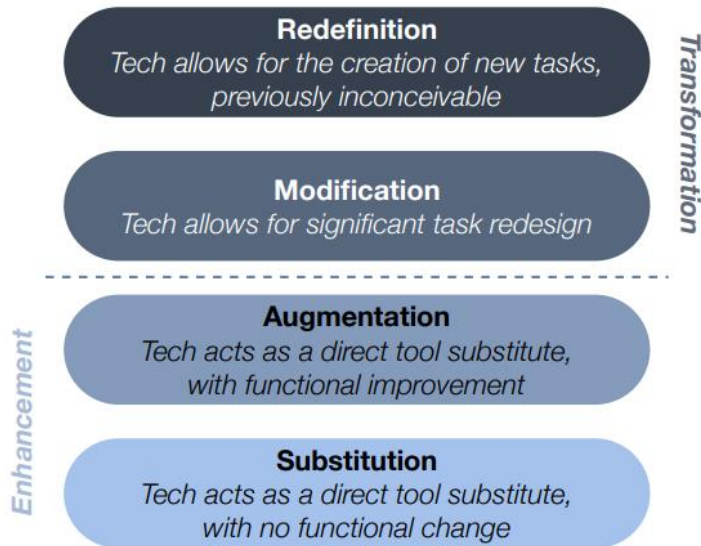
As online learning grew in popularity, forward thinking instructors began to realize that the potential of this new learning paradigm was not being met (Miller, 2000). In the last decade of the 20th Century and first decade of the 21st Century, online learning consisted largely of dressing old teaching methods in the guise of new technology (Tallvid, 2016; Vrasidas, 2015).

Education Technology Frameworks

Acknowledging this phenomenon and seeking to transform education, various education technology frameworks have been developed (Royce Kimmons & Hall, 2018). Their purpose is to guide educators beyond surface-level technology use, such as content presentation and word processing (Koh, 2019). The goal of progressive educators is using technology to create dynamic learning experiences in which students develop deep and rich digital competencies necessary for success in the global workforce (Pierce & James-Ward, 2021). Understanding these frameworks and their applications provide education stakeholders with necessary perspectives as they continue to evolve education both within ERT and beyond. The Substitution Augmentation Modification Redefinition (SAMR) model (Puentedura, 2014) and the Technological Pedagogical Content Knowledge (TPACK) framework (M. J. Koehler & Mishra, 2006) are among those most commonly used educational technology frameworks (Falloon, 2020) and are explored below. A third, the Teacher Digital Competency (TDC) framework (Falloon, 2020), purports to go beyond both the SAMR and TPACK models to account for digital phenomena unheard of when the others were created.

The SAMR Model

The Substitution Augmentation Modification Redefinition (SAMR) model, found in Figure 2, classifies four stages of education technology integration into two categories: enhancement and transformation (Puentedura, 2014). The first two stages fall into the enhancement category in which technology is used as a substitute and/or augmentation of traditional, in-person learning. For example, a teacher may wish to substitute a paper version for a digital version of test review questions. No functional change has been made to the process of reviewing test material. It is simply the mode of communication that has changed. Similarly, the same teacher may use an internet application to augment and administer that test. While the questions remain the same as they would have appeared on the paper test, web tools allow the teacher to audio record multiple-choice question and their accompanying answer selections. This enhancement enables students to hear questions and answer choices read to them in their own time as they progress through the exam.

Figure 2*SAMR Model*

Note: Descriptions of the SAMR Model levels. Reprinted from "Building transformation: An introduction to the SAMR Model," by R. Puentedura, 2014.

According to the SAMR model and literature exploring its applications, online learning should progress beyond the enhancement category to become a more interactive, transformative form of education (Caukin & Trail, 2019; Puentedura, 2014). However, The SAMR model includes no clear guidance on what makes a learning task transformational (Hamilton et al., 2016). Additionally, the SAMR model has been criticized for its hierarchical approach to technology integration in which substitution is of lesser value than modification (Hamilton et al., 2016). Transformative, technology-rich learning experiences cannot exist in a vacuum but must be designed within the context of their use. Context and learning goals, argue Hamilton et al. (2016), should be the considered when designing technology-integrated lessons.

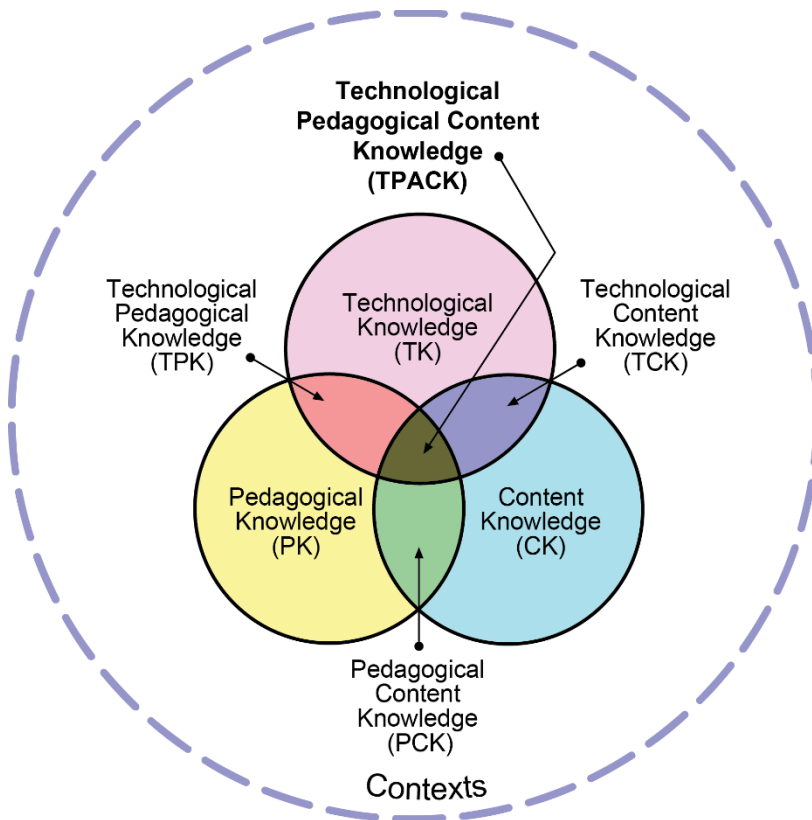
The TPACK Model

The Technological Pedagogical Content Knowledge (TPACK) framework takes a non-linear, contextual approach to educational technology integration (Falloon, 2020).

Within this framework, content knowledge (C), pedagogical knowledge (P), and technology knowledge (T) all overlap, creating four new types of knowledge. As seen in Figure 2, these are pedagogical-content knowledge (PCK), technological-content knowledge (TCK), technological-pedagogical knowledge (TPK), and technological pedagogical content knowledge, or TPACK (M. J. Koehler & Mishra, 2006).

Figure 3

TPACK Model



Note: Visual representation of the TPACK Model. Reprinted with permission. Copyright 2012 by tpack.org.

By integrating knowledge of course content, pedagogical expertise, and technology knowledge, a new, rich knowledge is created. That knowledge, TPACK, gives teachers a unique understanding of how to craft transformative learning experiences (M. J. Koehler & Mishra, 2006; Saubern et al., 2020).

Unfortunately, literature evaluating teacher education programs measures increases in the individual components of TPACK, including PCK, TCK, and TPK. The core idea that the specialist knowledge found in their synthesis, TPACK, is lost, leaving teacher-learners without the nuanced comprehension and skills necessary to design lessons that are simultaneously technology- and content-rich (Saubern et al., 2020). Providing teachers and teacher-learners TPACK design scaffolds has been shown to increase effective use of technology in lesson designs as well as learner outcomes (Koh, 2019). Use of TPACK design rubrics and lesson design heuristics resulted in significant positive increases in teacher confidence and pedagogical change (Koh, 2019). These types of scaffolds may be useful for educators who are teaching during the Covid-19 pandemic, as well as stakeholders who are looking ahead to the evolution of education.

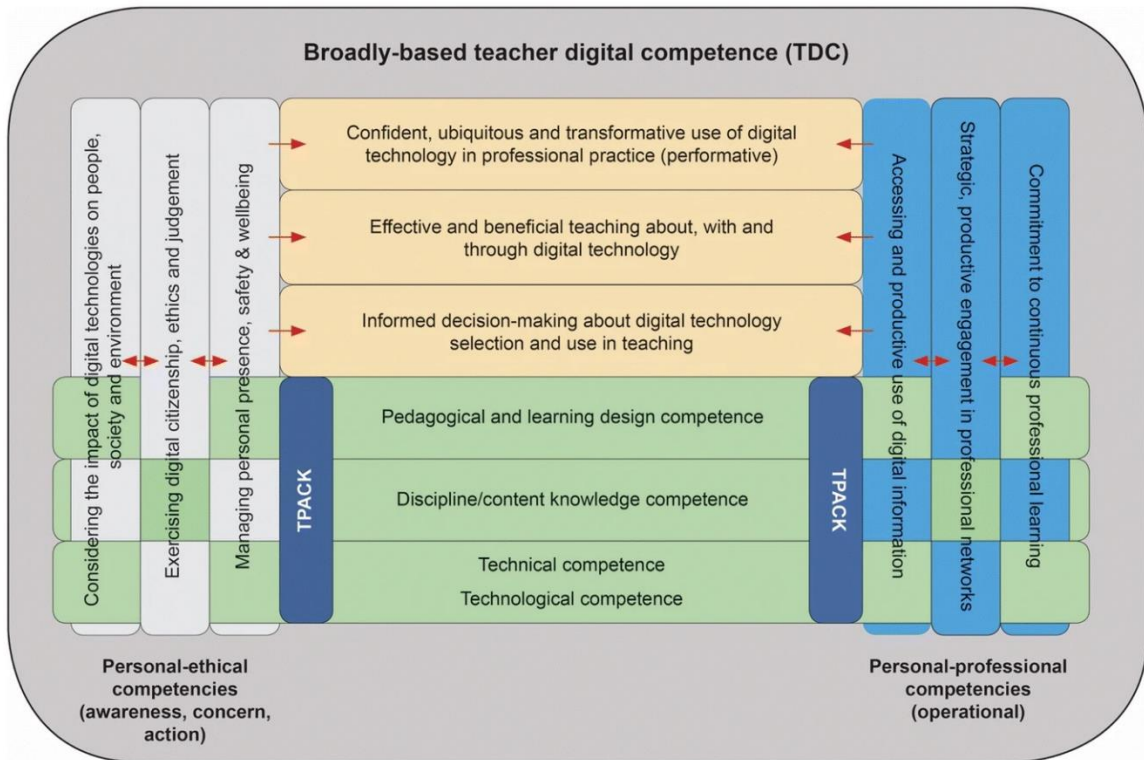
The TDC Framework

The TDC framework relies heavily on TPACK but purports to go beyond both the SAMR and TPACK models to include ethical and professional competencies (Falloon, 2020). Shown in Figure 4, TDC includes a virtually identical version of TPACK for its foundational three rows with a few distinctions worth mentioning. Falloon's (2020) TDC framework splits TPACK's "technology knowledge" into "technical competence" and "technological competence." Technical competence implies thorough understanding of digital technologies and skillful ability to operate them. Technology competence refers to

a teacher's ability to effectively apply technology to educational environments.

Additionally, TDC's "learning design competence" is defined as TPACK's combined knowledge of technology and pedagogy, or TPK. The "content" element of TPACK remains unchanged.

Unique to the TDC framework is the inclusion of personal-ethical and personal-professional competencies (Falloon, 2020). Personal-ethical competencies can be thought of as good digital citizen behaviors and an understanding of how to maintain the security of personal data. Personal-professional competencies include information literacy, productive engagement in professional networks, and commitment to professional learning. These two competencies are woven vertically into the TPACK elements of the framework, which then creates three articulated outcomes. The edition of the personal-ethical and personal-professional competencies, Falloon (2020) argues, creates a more holistic technology education framework.

Figure 4*TDC Framework*

Note: Visual representation of the TDC Framework. Reprinted from

“From digital literacy to digital competence: the teacher digital competency (TDC) framework,” by G. Falloon, 2020, *Education Technology Research and Development*, 68, p. 2459. Reprinted with permission.

Using Education Technology Models. When choosing an education technology model or framework, educators must consider the needs of their diverse communities (Kimmons & Hall, 2018). No one model can fit every educational context. Nor can individual teachers who are at varying degrees of technological knowledge and use be expected to function within a framework without specific and sustained training (Royce Kimmons & Hall, 2018; Koh, 2019). Before teachers use any technological framework to

guide their pedagogy, they must buy in to the necessity of transforming education through the use of technology (Scherer et al., 2019; Tallvid, 2016; Willis et al., 2019).

Attitudes and Abilities

Research into teacher attitudes toward educational technology in general (Admiraal et al., 2017; Scherer et al., 2019; Tallvid, 2016; Willis et al., 2019) and online learning specifically (Barbour & Harrison, 2016; Huh & Reigeluth, 2018; Nasser & Abouchdid, 2020; Smith et al., 2016) is abundant. Teacher attitudes are significant because they influence the attitudes and behaviors of their students (Blazar & Kraft, 2017). Likewise, teacher attitudes and beliefs about educational technology directly impact their use of that technology in their pedagogy (Barbour & Harrison, 2016; Lalima & Lata Dangwal, 2017; Maskit, 2011; Willis et al., 2019).

Acceptance of Educational Technology

Teacher acceptance of educational technology is varied and depends on several factors (Barbour & Harrison, 2016; Lalima & Lata Dangwal, 2017; Willis et al., 2019). According to Davis' (1989) Technology Acceptance Model (TAM), people are more likely to accept and employ technology if they perceive it to be useful. Indeed, intentional, focused technological skill integration in education is necessary if schools are to adequately prepare students for their future careers (Brown & Keep, 2018). Since most California K-12 schools are now employing ERT, it is safe to say most teachers now view educational technology useful. Nevertheless, if teachers believe the acquisition of technological skills to be essential to students' lives, teachers are far more likely to integrate technology in meaningful ways (Willis et al., 2019).

The Technology Acceptance Model (Davis, 1989) also predicts individual technology adoption based on perceived ease of use. Districts, schools, and individual teachers are currently using a plethora of different educational technologies. It is beyond the scope of this study to assess teacher perceptions of ease of use of those technologies. Generally, however, exposure to online learning environments (Barbour & Harrison, 2016) and attainment of higher levels of technological proficiency (Willis et al., 2019) may influence a teacher's perception of ease of use.

Teachers reporting high self-efficacy with educational technology are predicted to use more technologically integrated, student-centered learning in elementary classrooms (Sangkawetai et al., 2020). In other words, teachers who feel comfortable using educational technology are more likely to use it to produce effective learner-centered experiences. Supporting evidence for this phenomenon was found in a Dutch study in which researchers created a typology of teachers' beliefs and actions about teaching and technology (Admiraal et al., 2017). The typology created by Admiraal et al. (2017) classifies teachers into five categories based on their attitudes toward student-centered learning and technology adoption.

Another effort to classify adopters of innovation is Rogers' (2003) five adopter categories. In order of most innovative to least innovative, the five categories are innovators, early adopters, early majority, late majority, and laggards. Earlier adopters of innovations such as education technology tend to be more open minded (Rogers, 2003) and have a more favorable attitude toward change (Lalima & Lata Dangwal, 2017), thereby making an emergency shift in teaching methods more tolerable. Generally, when compared to later adopters, earlier adopters have more years of formal education, are

more empathetic, are better able to think in the abstract, and are more socially connected to the world around them (Rogers, 2003). Earlier adopters see technology in the classroom as an exciting prospect that can lead to pioneering advancements in pedagogy (Wilson & Stacey, 2004).

Resistance to Change

By contrast, teachers who are resistant to adopting educational technologies tend to make decisions based on what worked for them in the past (Rogers, 2003). These later adopters tend to be skeptical of innovations. According to Rogers (2003), about half of organizational members will adopt innovations only when economics and/or peer pressure necessitate adoption.

In these times of mandatory ERT, many objections teachers may have had to online learning are now practically irrelevant since ERT is the only method currently available to most teachers. The current pandemic has required changes in teaching methods, forcing immediate adoption of education technology innovations among all categories of adopters (N. Johnson et al., 2020; Song et al., 2020). Nevertheless, understanding teachers' past resistance to technology adoption can assist in understanding how to help them now.

Some teachers avoid technology integration because they see it as incompatible with the subject matter they teach (Hew & Brush, 2007). Others have resisted adopting in part because they did not wish to put in the necessary time it took to learn the technology, particularly if they are nearing the end of their careers (Maskit, 2011; Tallvid, 2016). Additionally, they did not see the costs of time and other resources to be worth the possible benefits, particularly if they did not have the technological competencies to

troubleshoot tech-related problems (Barbour & Harrison, 2016; Khlaif, 2018; Tallvid, 2016). These attitudes both harken back to TAM's perceived usefulness and perceived ease of use predictors (Davis, 1989).

Lack of control has also been cited by teachers as a reason for their reluctance to adopt technology (Barbour & Harrison, 2016; Tallvid, 2016). Teachers reported feeling a lack of classroom management when technological devices are used by students. They also reported a sense of dis-ease when stepping out of their comfort zones of traditional, teacher-directed learning to more learner-centered pedagogy, which is often associated with technology integration (Admiraal et al., 2017). Lack of control can also be associated with lack of technical competence. When teachers are not confident in their abilities to troubleshoot technical issues as they arise, they are less likely to adopt educational technology as an integral part of their pedagogy (Darling-Aduana & Heinrich, 2018; Mahdum et al., 2019; Tallvid, 2016).

Suggestions for Implementing Technology Innovations

Research shows that a proactive, planned, and systematic initiation phase of technology integration is necessary to minimize resistance of educational technology adoption (Scherer et al., 2019; Vrasidas, 2015). Simply purchasing computers, constructing wifi networks, and building up other requirements of technological infrastructure will not result in technological innovation (Vrasidas, 2015). Teachers require training on the application and function of different technologies at their disposal (Moore-Adams et al., 2016; Vrasidas, 2015)

Professional Development

In-service teachers require professional development around online learning. Since lack of technological skills and exposure to online learning programs is a barrier to technology adoption (Hew & Brush, 2007), they offer a logical starting point for professional development. Scherer et al. (2019) suggest focusing on the perceived usefulness and perceived ease of use of technology, as these are the basis of TAM (Scherer et al., 2019).

For substantive and lasting technological innovation to take hold, teachers need to lead the way, becoming active participants in its adoption (Maskit, 2011). Change agents must select those teacher-leaders carefully, drawing on what they know about teachers' career stages (Maskit, 2011), where those teachers fall in the Admiraal et al. (2017) typology, and how they could be classified in Rogers' (2003) adopter categories. Wilson and Stacey (2004) suggested developing a "critical mass" of technologically competent teachers prior to engaging in system-wide change. That critical mass is necessary to provide localized peer support – an essential factor in sustaining technologically innovative teaching and learning practices.

Necessary Components for Implementation

In addition to teacher involvement, successful education technology innovation at every level – technology integration, blended learning, and online learning – requires informed stakeholders and administrative leadership (Barbour & Harrison, 2016). The more a community knows about online learning, the more likely it is to provide online learning opportunities (Barbour & Harrison, 2016). Teacher-student communication must be copious and timely so that crucial relationships are established (Burdina et al., 2019).

Similarly, all stakeholders should clearly understand their roles and responsibilities in making online learning a success (Archambault et al., 2016).

Online Course Design

In-person teaching cannot be directly transferred to online teaching (Kennedy & Archambault, 2012). Online teaching requires a different pedagogy that redesigns learning experiences, enabling students to acquire skills necessary for success in a technology-driven economy (Brown & Keep, 2018; Hamilton et al., 2016; Luo et al., 2017). Willis et al. (2019) suggest steering teachers away from traditional methods that focus on content rather than skills development. Teachers and other curriculum developers must be secure in their technological competencies (Willis et al., 2019). Online learning curriculum must also be reviewed for quality and updated regularly (Archambault et al., 2016). Reviewers need to understand online pedagogy and how to evaluate online curriculum for online learning to be considered rigorous and appropriate to the task (Archambault et al., 2016)

Teacher Preparation Programs

Current statistics on the availability of programs specifically designed to train pre-service teachers for online learning are unknown. However, a 2012 study indicated a mere 1.3% of teacher preparation programs nationwide offered training for non-traditional learning environments (Kennedy & Archambault, 2012). The same study found that 13% of teacher preparation programs were planning to introduce virtual-learning experiences. Undoubtedly, those numbers have increased in recent years as K-12 virtual schools have grown in popularity. Kennedy and Archambault (2012) also pointed

out that merely engaging in online coursework as part of a teacher preparation program does not prepare one for becoming the online teacher.

National Standards for Quality Online Teaching

In-service teachers requiring professional development, pre-service teachers in need of training, and online curriculum reviewers would all benefit from knowledge of National Standards for Quality Online Teaching (NSQOT) (*National Standards for Quality Online Teaching*, 2019). Updated from its previous 2011 incarnation, the NSQOT articulate eight standards, each accompanied by four to nine indicators. The standards and indicators are explained and examples for each are provided for clarity. Standards include digital pedagogy, learner engagement, diverse instruction, and instructional design. (Adelstein & Barbour, 2017) devised a course design rubric based on the original standards. Although the rubric does not align to the updated standards, it provides a rich tool for those seeking to create quality online courses. Whatever method schools use to ensure the quality of their online programs, the use of course-design experts is essential (*National Standards for Quality Online Teaching*, 2019).

ERT During Natural Disasters

Teachers and students who find themselves amid a natural disaster or other emergency do not have time to put the above suggestions in practice. Indeed, some disasters are so destructive that ERT is not even addressed; health and safety concerns become the first and only priority (Gemmetto et al., 2014; Navarro et al., 2016; Wong et al., 2014). Studies of K-12 school closures have focused primarily on reasons for school closure and effectiveness of closures in mitigating the spread of disease (Gemmetto et al., 2014; Wong et al., 2014). (Lai et al., 2019) studied Hurricane Ike's effect on educational

recovery of students in grades K-12 but did not address specific measures taken to continue education in the immediate aftermath of the 2008 hurricane. While ERT studies of K-12 schools are few and far between, there are some studies of higher education institutions that sought to continue education using blended and/or online learning after a natural disaster. Several of those incidents are explored in this section.

Hurricanes Katrina and Rita

Arguably the most herculean of ERT efforts were made in 2005 when Hurricanes Katrina and Rita decimated the city of New Orleans and surrounding areas. In response, a consortium of colleges and universities came together to offer students free college classes for credit, known as the Sloan Semester (Lorenzo, 2008). Named for the private foundation that funded it, the Sloan Semester was born out of the July 2005 proposal for an “Emergency ALN (Asynchronous Learning Network): Delivering the curriculum when the campus is closed; Pre-proposal for a national workshop” (Lorenzo, 2008, p. 6). The proposal called for preparations for online learning in case of natural disasters, epidemics, or terrorist attacks. It was fast-tracked when Hurricane Katrina hit.

Institutions that were able to provide online courses sent information to the Sloan Consortium (Lorenzo, 2008). Students were enrolled through an online clearinghouse of sorts that cataloged available courses (Lorenzo, 2008). The logistics of the Sloan Semester were daunting and taught stakeholders many lessons for future implementations of ERT. Clear communication of participant duties and expectations at every level was paramount, as was the creation of a clearly defined operations system (Lorenzo, 2008). Lorenzo (2008) also noted the need for extensive student services to assist with academic requirements such as registration, enrollment, and financial aid. The Sloan Semester

created a bridge for the continued education of affected college students. Ultimately, 153 institutions offered a total of 1,345 online courses.

Canterbury Earthquakes

In the Canterbury region of New Zealand, two massive earthquakes and subsequent aftershocks struck in the last months of 2010 and throughout the beginning months of 2011. The University of Canterbury closed immediately after the initial 2010 earthquake and remained closed for three weeks (Mackey et al., 2012). During that time, school personnel prepared for broad shifts to online and/or blended learning. The university's College of Education was relatively well prepared for the shift due to its previous work in implementing online learning using an LMS. Nevertheless, the crisis required educators to redesign their online learning spaces in preparation for more widespread use of the college's LMS (Mackey et al., 2012).

Mackey et al. (2012) found that staff unfamiliar with online learning and the college's LMS struggled to make the shift to ERT. Data showed those teachers began to build their own support networks to deal with technical issues and solve other related problems (Mackey et al., 2012). School schedules and room assignments were changed as more earthquakes rocked the region, requiring all community members to adjust to the continually changing environment. The crisis provided a catalyst for more personnel to learn the mechanics and pedagogies of blended and online learning (Mackey et al., 2012). It also demonstrated the need for students to have prior exposure to online learning as many students were unprepared for the required learner behavior shifts (Mackey et al., 2012). Behaviors include self-regulated learning practices that should be taught in grades K-12 (Huh & Reigeluth, 2018).

Hurricane Harvey

Hurricane Harvey hit Texas in August 2017, resulting in massive disruption for schools at every level (Goldstein, 2017). More than 3,000 schools across Texas, Louisiana, Kentucky, and Tennessee were closed, most due to flooding, power outages, and structural damage. Others were used as shelters and resource centers for affected communities (Jackson & Ahmed, 2020). Schools with closures of one to six days were able to excuse students or adjusted school calendars to make up the lost instructional time. Schools unable to reopen in a timely manner relocated or merged with neighboring schools. The depth and breadth of the destruction from Hurricane Harvey prevented K-12 students at affected schools in Texas from participating in ERT.

Students of Southern Houston State University, however, did take advantage of ERT. The university campus sustained only mild damage as it was out of the hurricane's direct path. Many students who lived off campus lived in areas hit hard by the hurricane, including the majority of those enrolled fully online – about 15%, or approximately 3,000 students (Holzweiss et al., 2020). Interestingly, as a result, it was the school's online learning population that required ERT. University personnel attempted to mediate the effect of the hurricane on its online student population by offering compressed courses. Faculty adjusted their normally 15-week-long courses into 7.5 weeks. The optional compressed courses started in October, allowing students several weeks to deal with any hurricane-induced obstacles to continuing their education (Holzweiss et al., 2020). Buy-in from stakeholders was mixed. Some students appreciated the dramatically altered course delivery, though not all their instructors made the shift (Holzweiss et al., 2020). This resulted in some students navigating both compressed and regularly scheduled

classes while also managing issues created by hurricane. Internet and/or computer access were limited for some students. Faculty struggled to meet the demands of creating and facilitating the altered courses and relied on the program's online support team for extensive assistance throughout the disruption (Holzweiss et al., 2020).

Data collected from the online support team allowed researchers to develop six recommendations for crisis planning. One recommendation urged campus leaders to familiarize themselves with online student demographics (Holzweiss et al., 2020). The better leaders understand student needs, the more quickly they will be able to respond to those needs. Holzweiss et al. (2020) also recommended the creation of a crisis team for online students that would include existing personnel who already support online students, human resources staff, and a member of the school's student affairs division. Personnel from these three groups would support students' academic needs, faculty needs, and student non-academic needs, respectively. While the Holzweiss et al. (2020) study focused on crisis plans for students already engaged in online learning, the researchers' recommendations are useful for any school looking to prepare for ERT.

ERT During Covid-19

Unfortunately, natural disasters are becoming all too common, but none have had the breadth and depth of impact on education as Covid-19. Empirical research about elementary teachers' experiences during Covid-19 in the United States is now emerging that shows the evolution of ERT from its March 2020 onset through the uncertainties of the 2020-21 school year (Klosky et al., 2022; Liao et al., 2021; Pressley, 2021; Pryor et al., 2020; Tobin et al., 2021). The swiftly moving pandemic did not allow for strategic, planned professional development for technology adoption (Hartshorne et al., 2020).

Teachers unfamiliar with online learning technologies found themselves thrown into the proverbial deep end of the ed-tech pool in March 2020. They were required to learn on the job, adding greatly to their workload and causing much chaos among school personnel as they scrambled to make education work for teachers and students during unprecedented circumstances (Ferdig et al., 2020; N. Johnson et al., 2020; Petillion & McNeil, 2020; Schuck & Lambert, 2020).

As ERT continued into the 2020-21 school year, “emergency” circumstances began to feel more like a “new normal.” Questions about ERT sustainability arose (Sheikh et al., 2020). At what point is ERT no longer ERT? In the 2020-21 school year, some K-12 schools remained closed for in-person instruction and others moved to blended-learning models. When does ERT become the new normal, and what do we call it then? Components of ERT remain even as the pandemic comes to a close, and stakeholders encourage educators and lawmakers to use this phenomenon as an opportunity to fundamentally change education in the United States (Evans, 2020; Pierce & James-Ward, 2021; Pryor et al., 2020).

Teacher attitudes toward technology have changed because of ERT during the pandemic. In its 2020 report, Project Tomorrow’s Speak Up Research Project found evidence of profound and sustained transformation of education due to the Covid-19 ERT event (Evans, 2020). Specifically, the study found teachers’ attitudes toward the value of education technology had shifted. Teachers’ widespread use of different education technologies gave them a better understanding of the types of technology available and which were most effective with their students (Evans, 2020).

Support for Teachers

Beyond their attitudes about technology, teachers' self-efficacy shifted as well, but in a negative direction (Pressley, 2021). Supporting teachers during extended periods of online instruction can be accomplished in several ways and is critical to bolstering teacher self-efficacy and student engagement (Liao et al., 2021; Pressley, 2021; Pryor et al., 2020; Tobin et al., 2021). Ongoing professional development in the use of technology with online instruction is critical (N. L. Leech et al., 2022; Pressley, 2021; Pressley et al., 2021; Pryor et al., 2020; Tobin et al., 2021). Pressley (2020) suggests simply providing verbal encouragement to teachers can help them feel more empowered. Administrator observation and frequent, constructive feedback early in an online teaching environment can benefit teachers with decreased senses of self-efficacy. (Pressley, 2021; Pressley et al., 2021).

Monitoring and addressing teachers' anxiety is also critical to bolstering teacher self-efficacy (Kim et al., 2022; Pressley, 2021; Pressley et al., 2021; Robinson et al., 2022). Schools provided personal protective equipment (PPE) to teachers to help mediate stress related to the physical risks of teaching during Covid-19, but they should also have provided more mental-health supports, including flexible scheduling for instructional planning and time off (Kim et al., 2022; Robinson et al., 2022). Much of a teacher's identity is found in her desire and ability to care for her students (Jones & Kessler, 2020). When the ability to care for students is disrupted due to ERT, teachers experience a drop in feelings of self-efficacy and increased stress and anxiety (Jones & Kessler, 2020; Robinson et al., 2022).

Support for Students

Organization, engagement, and relationships are key to supporting elementary students (Jones & Kessler, 2020; Leech et al., 2022; Liao et al., 2021). Consistency in the presentation of materials to students is critical, particularly in the primary grades (Liao et al., 2021). Using age-appropriate tools such as a class website, project-based learning, and minimizing the number of clicks students need to access content also contribute to student learning (Leech et al., 2022; Liao et al., 2021). Parent support of online learning at the elementary level is essential for student success (N. L. Leech et al., 2022). Leech et al. suggest districts provide clear and consistent expectations of family involvement in online learning and provide family training sessions in multiple languages.

Common Themes

Scholarly research on ERT and teacher experiences with ERT is being actively solicited, and contributions are continuously being added to the literature (Hartshorne et al., 2020). Research specifically about teaching and learning in the elementary grades is still somewhat limited. Nevertheless, some common themes emerge from the extant literature about teaching and learning at all levels during Covid-19.

Communication

The manner and frequency of communication between and among administrators, teachers, students, and parents is a prominent theme (Goddard, 2020; A. A. Koehler & Farmer, 2020; McCarthy & Wolfe, 2020; Petillion & McNeil, 2020; Schuck & Lambert, 2020; Vu et al., 2020) Expectations of all parties must be clearly and regularly communicated (Goddard, 2020; N. L. Leech et al., 2022; Liao et al., 2021; McCarthy & Wolfe, 2020). Surveys of all stakeholders, including parents, students, and teachers, can

provide decision makers with accurate and timely information about the needs of the school community (Ferro & Anderson, 2020; N. Johnson et al., 2020; A. A. Koehler & Farmer, 2020; Mahaffey & Kinard, 2020).

One of the most conspicuous needs of students has been equipment and internet access (Darling-Hammond et al., 2020; Evans, 2020; Ferro & Anderson, 2020; Mahaffey & Kinard, 2020; Vu et al., 2020). Some schools and districts set up mobile hot spots for students to address connectivity issues (Vu et al., 2020). Equitable access to digital tools is the first of ten priorities in the Learning Policy Institute's report on reinventing school (Darling-Hammond et al., 2020)

Surveys can also guide school leaders when deciding on necessary professional development for in-service teachers (Johnson et al., 2020). Common lesson planning techniques were found to be desirable by both teachers and parents in the early days of the Covid-19 school closures (Flynn, 2020; Goddard, 2020; McCarthy & Wolfe, 2020). Parents of K-12 students reported frustration with multiple and varying platforms for accessing information and lesson content (Mahaffey & Kinard, 2020; McCarthy & Wolfe, 2020). Preliminary research showed parents appreciated a sort of "one-stop-shop" where they could locate information about learning activities for the week. This was confirmed by later research that found limiting the number of "clicks" students and parents had to navigate online to find ERT resources was beneficial (Liao et al., 2021).

After surveying stakeholders about their specific needs, decision makers need to choose digital tools that will be used uniformly to communicate (Liao et al., 2021; Mahaffey & Kinard, 2020). Literature indicates Google is a commonly used online platform (Ferro & Anderson, 2020; Goddard, 2020; Gonzalez-Dogan & Dogan, 2020;

Hulon et al., 2020; Neumann & Smith, 2020). Google's education apps give teachers the ability to post lesson content and interact with students in varying capacities (*G Suite for Education*, n.d.). Google apps also include online meeting platforms and collaborative workspaces. Some teachers found the use of mobile technologies that can be used on smartphones, such as the ClassDojo app, were useful in bridging technological divides experienced by families with little-to-no internet connectivity (Barko-Alva et al., 2020; Clausen et al., 2020; A. A. Koehler & Farmer, 2020; Vu et al., 2020). Regardless of the specific measures schools develop to address ERT needs, communication of those measures is key (Borup et al., 2020; Clausen et al., 2020; A. A. Koehler & Farmer, 2020; Vu et al., 2020).

Relationships & Mental Health

Studies focused on higher education in the time of Covid-19 reveal student-teacher relationship to be a critical element for successful ERT and online learning (Gares et al., 2020; Jeffery & Bauer, 2020). Johnson, et al. (2020) found preliminary evidence that the care and concern that administration, faculty, and students had for one another was necessary for success, and they suggest specific investigation of these relationships' effects on teaching and learning practices. Elementary teachers' self-efficacy suffered when their caring identity was diminished due to the physical restrictions imposed on them by Covid-19 (Pressley, 2021). Primary grade teachers discussed the importance of strong teacher-parent relationships for academic gains among students learning to read since substantial adult assistance is required to meet the demands of young learners (Fox, 2020; N. L. Leech et al., 2022; Liao et al., 2021; Mahaffey & Kinard, 2020; Vu et al., 2020). The same is true for special education

students who require specific behavior supports and adaptations in addition to those made for academics (Schuck & Lambert, 2020). Special education teachers in one study had to extend their parent relationships to include training on specific behavioral and academic practices (Schuck & Lambert, 2020). Developing these critical relationships during ERT, though, requires the use of communication technology – a skill for which many teachers required professional development at the start of the pandemic.

Professional Development

Prior to the Covid-19 pandemic, professional development around educational technology was limited to specific app or program use (Gudmundsdottir & Hathaway, 2020; Wolfe & McCarthy, 2020). While learning to use digital tools is necessary for successful implementation of online learning, teachers need to be aware that simply using those tools as a substitute for in-person learning is not adequate for a rich learning environment (Canipe & Bayford, 2020; Hulon et al., 2020; Neumann & Smith, 2020; Wolfe & McCarthy, 2020). Even in schools where blended and/or online learning was not a new phenomenon, teachers struggled to make the shift to ERT during the Covid-19 crisis (Clausen et al., 2020; N. Johnson et al., 2020). The sudden introduction of different learning management systems and technology platforms was overwhelming (Whittle et al., 2020). Some teachers lamented the inability to take time at the beginning of the pandemic to learn specific ed-tech tools being used by their schools and/or districts (Whittle et al., 2020). Others were most receptive to specific modes and types of professional development at the onset of school closures. Focused, “just-in-time” training is lauded by teachers in the literature (Debruler et al., 2020; Neumann & Smith, 2020). Brief, subject specific, practical videos that model online learning tools were extremely

popular (Prestridge & Cox, 2020). Another successful mode of training was the use of teacher leaders who provided individual support to colleagues who required more guidance during the transition (Ferro & Anderson, 2020; Neumann & Smith, 2020).

It is critical that professional development efforts focus on relationship development between teachers in addition to skills attainment (Gonzalez-Dogan & Dogan, 2020). When trust is built between teachers, those on the receiving end of professional advice or guidance will be more apt to take that advice (Gonzalez-Dogan & Dogan, 2020) Gonzalez-Dogan and Dogan (2020) suggest teachers join each other's Google Classrooms so they can watch experienced and technologically proficient teachers in action. They extend this suggestion to administrators who can provide on-the-spot coaching while attending teachers' virtual classes.

Assessment

Some teachers reported that assessment of student progress had become less of a priority in the first weeks and months of ERT as teachers first sought to create stable learning environments (Whittle et al., 2020; Wyse et al., 2020). One frequently used online assessment tool used by K-12 schools is Renaissance Learning's STAR Reading and Math Assessments, which showed declines in both usage and student test scores during spring 2020 assessment windows (Wyse et al., 2020). Some teachers are relying on their own assessments of student work using asynchronous tasks (Baleja, 2020; Fitzpatrick et al., 2020). Baleja (2020) found that her use of screencasting to provide instruction could also be used by students as evidence of their learning. Students in her university courses recorded themselves giving demonstrations of course content. Similarly, Fitzpatrick et al. (2020) detailed how to record audio feedback to student

writing submissions. This practice provides personalized, detailed feedback and resulted in improved student writing (Fitzpatrick et al., 2020).

Higher education institutions found students were desirous of more flexible assessment modes compared to traditional, closed-book, timed tests (Gares et al., 2020; Petillion & McNeil, 2020). Some institutions provided a credit/no-credit option rather than letter grades (Gares et al., 2020). Special-education teachers had similar experiences with assessment. Schuck and Lambert (2020) discuss teachers' decision temporarily to drop academic assessment altogether in favor of social-emotional and routine-building activities. Overall, assessment practices, like teaching practices, need to be adjusted for ERT.

Planning

Recognizing the inevitability of future ERT events, researchers in Pennsylvania developed an Emergency Remote Teaching Environment framework to better understand, prepare for, and address learning needs in times of crisis (Whittle et al., 2020). The framework consists of a nonlinear and iterative cycle of inquiry, classification of resources as constants and variables, and course design. Within the course-design cycle are eight dimensions, each reliant on classifications of constants and variables in each dimension. Three of those dimensions are identifying critical learning goals, determining appropriate student-teacher ratios, and deciding when to use synchronous and asynchronous activities (Whittle et al., 2020). Building agency among learners is the fourth design dimension, emphasizing the value in allowing students to pursue learning in their own environments. Assessments, while prioritized, should be redesigned to lower their stakes, while the social connection of teachers and students is amplified (Whittle et

al., 2020). Consistent, sustained feedback as a means of low-stake, formative assessment is the final design dimension (Whittle et al., 2020).

Summary

This chapter began by defining critical terms, including technology integration, blended learning, online learning, and ERT. It briefly reviewed the history of online learning and explored different technology integration frameworks. Past acceptance of technology was explored in light of the TAM and Roger's (2003) adopter categories. That exploration furnished background information useful for understanding ERT in past natural disasters. It also informed teacher practices during ERT in the Covid-19 era. Research into ERT is ongoing. The current pandemic has been a catalyst to research specific to K-12 online learning practices – an area just emerging in extant literature. This study adds to the literature on elementary school teachers' ERT experiences, providing a focus on teacher needs and planning for future ERT events.

CHAPTER THREE: METHODOLOGY

This chapter begins with a review of the problem to be studied and the purpose of the proposed research. It includes restatement of the research questions followed by an explanation of qualitative, interpretive phenomenology as the chosen research methodology. Participant recruitment and sampling is then outlined. Data collection procedures and instruments are detailed, and iterative thematic analysis procedures are defined and discussed. The chapter concludes with a review of ethical considerations. The problem addressed in this qualitative, interpretive phenomenological study is teachers' lack of preparedness for an immediate switch to online learning due to the Covid-19 pandemic. The purpose was to understand the lived experiences of elementary teachers in California who switched to emergency remote teaching (ERT) during the Covid-19 pandemic. That knowledge was then be used to create a dynamic, customizable blueprint for schools in preparation for the next ERT event.

Research Questions

The following research questions guided this qualitative study:

RQ1. What are the lived experiences of elementary teachers in California in relation to technology use and application of online pedagogy while implementing ERT during the Covid-19 pandemic?

RQ2. What supports do elementary teachers in California believe will help them deliver rich learning experiences to their students in an ERT environment?

Method

This study was qualitative because it focuses on understanding the nature of the problem rather than seeking to quantify the problem (Roberts, 2010). Qualitative research

involves the study of words rather than the study of numbers and is not designed to test a pre-determined hypothesis (Babbie, 2017; Roberts, 2010). This study used the responses of teacher participants to develop suggestions for supporting teachers. Because the aim of this study was to understand the lived experiences of teachers during the Covid-19 pandemic, a qualitative approach was appropriate.

Research Design Overview

More specifically, this was a qualitative, interpretive phenomenological study designed to explore the lived experiences of teachers during the Covid-19 pandemic and to articulate interventions to support teachers. Phenomenology is a popular research approach among social scientists that focuses on either description or interpretation of participants' experiences as related by the participants (Babbie, 2017; Creswell & Poth, 2018; Lopez & Willis, 2004; Moustakas, 1994). In phenomenology, researchers view a phenomenon through the eyes of those experiencing it.

This study used interpretive phenomenology, sometimes known as hermeneutical phenomenology, which is distinct from strictly descriptive or transcendental phenomenology (Creswell & Poth, 2018; Lopez & Willis, 2004). While both descriptive and interpretive approaches emphasize that reality is defined through the collective experiences of participants, descriptive phenomenology seeks only to describe that reality. Interpretive phenomenology relies on researchers' interpretation of participant narratives to develop possible solutions to commonly articulated problems (Lopez & Willis, 2004). This approach is well-suited to research that aims to propose solutions in response to a problem (Creswell & Poth, 2018; Horrigan-Kelly et al., 2016; Lopez & Willis, 2004; Moustakas, 1994).

The phenomenon studied was the rapid and unplanned shift to ERT in March 2020, as well as its continued use in the 2020-21 school year, by California elementary school teachers. Participant experiences were interpreted using iterative thematic analysis with the aim of finding solutions for teachers experiencing ERT.

Participants

This study's population included elementary and middle-school teachers in California who were forced to switch to ERT in the spring of the 2019-20 school year. There were 146,521 elementary school teachers and 47,374 middle-school or junior high teachers in California in the 2018-19 school year, the most recent year for which those statistics are available (California Department of Education, 2020a). By April 27, 2020, all schools in California were closed, meaning all California teachers were affected (S. Johnson, 2020). The study sample was 10 elementary teachers located throughout the state who had at least one year of teaching experience prior to the 2019-20 school year. They were recruited using snowball sampling, sometimes referred to as chain referral (Babbie, 2017). Four known members of the population were asked to reach out to their social networks in search of potential participants using a short, prewritten description of the study being conducted. That description included contact information, allowing potential participants to contact the researcher directly. A purposive sample was extracted from those contacts. The sample included teachers from both primary (K-2) and intermediate (3-6) grades. Teachers at virtual schools were excluded from the sample because their educational programs are already designed to be delivered online. This study explored the experiences of teachers who had to switch from in-person teaching to ERT.

The number of participants was 10, which was sufficient to reach saturation. As defined by Creswell and Poth (2018), saturation has been reached when no new information is being collected from participants. In other words, once interview responses become repetitive from participant to participant, data saturation has occurred.

Data Collection

Semi-structured, one-on-one interviews were conducted with teachers included in the purposive sample. Teachers were asked about their experiences switching from in-person teaching to ERT. They were also asked about the efficacy of their school or district's transition process. Participants were recruited through chain referral (Babbie, 2017) and selected to ensure equitable representation of teachers by grade level and geographic location.

Data Collection Procedures

Interviews were conducted with California elementary school teachers via online meeting platforms. In-person interviews were not possible during the Covid-19 pandemic. Social distancing regulations to help prevent the spread of the virus required alternative interviewing methods. Online meeting platforms allowed audio and visual contact between researchers and participants, providing researchers the ability to observe facial expressions. These observations were recorded using memoing. Body language observation, however, was limited since only the heads and shoulders of participants were visible.

Click or tap here to enter text. Interviews were audio- and video-recorded to allow playback of both spoken words and facial expressions. Interviews were transcribed using an online transcription service. Transcripts were given to interview participants for their

review as a means of member checking -- a way to ensure trustworthiness of qualitative data (Birt et al., 2016). Another form of member checking is a second interview in which the researcher asks clarifying questions of participants (Birt et al., 2016). Interview recordings, transcriptions, and researcher notes are stored in a secured cloud environment accessible only to the researcher.

Data Collection Tools

An interview protocol was developed that included open-ended questions. Follow-up questions were included to help prompt participants if needed (Creswell & Poth, 2018; Jacob & Furgerson, 2012; B. L. Leech, 2002; Moustakas, 1994). Teachers were asked to describe their experiences in the spring of 2020 when they were required to switch from in-person instruction to ERT. Participating teachers were also be asked to describe their teaching experiences in the fall of 2020 when school resumed during the Covid-19 pandemic. Teachers were asked to explain the professional development activities they engaged in to help facilitate the ERT transition. Their perspectives on the most helpful ERT supports and interventions were also solicited.

Expert review of the interview protocol was solicited prior to its use, making the protocol a more dependable instrument (Amankwaa, 2016). To further ensure the interview protocol's dependability, it was piloted with a population member who was not part of the research study sample (Creswell & Poth, 2018; Jacob & Furgerson, 2012). Reflexive journaling in the form of extensive memoing took place during interviews to record researcher observations of facial expressions and tones of participants. Reflexivity refers to the researcher's own orientation in relation to the subject matter (Babbie, 2017; Creswell & Poth, 2018). Reflexive journaling is a means for researchers to disclose their

own related backgrounds and experiences while engaging in research (Creswell & Poth, 2018). This type of journaling adds to the credibility of the qualitative research data collected (Amankwaa, 2016).

Data Analysis

Interview transcripts and notes were uploaded into the web-based data management system, MAXQDA. The process of iterative thematic inquiry (ITI) was then begun prior to any detailed attempt at coding. ITI differs from more traditional methods of qualitative data analysis in that it does not rely on bracketing or transcendental subjectivity to conduct scientifically valid research, such as that advocated by Husserl (1970) in his discussion of descriptive phenomenology (Lopez & Willis, 2004). An interpretive, or hermeneutical, approach to phenomenology requires explicit declarations of researcher preconceptions and uses those preconceptions as an asset to the construction of meaning (Horrigan-Kelly et al., 2016; Morgan & Nica, 2020). As such, ITI was used to analyze and interpret data for this study.

First introduced in the literature in March 2020, ITI has its roots in pragmatism wherein existing beliefs and prior knowledge are the basis of new learning (Morgan & Nica, 2020). The four phases of ITI are assessing initial beliefs as themes, building new beliefs during data collection, listing tentative themes, and evaluating themes through coding. Essentially, the researcher creates a preliminary list of themes that are expected to emerge from the forthcoming data. Acting as a pseudo-hypothesis, the list of themes also explicitly exposes researcher bias by declaring expected outcomes before research has begun (Morgan & Nica, 2020). As data is collected, preliminary themes-as-hypotheses are reevaluated based on evidence from interviewees. Memos document the

evolution of the researcher's thought and learning, collectively creating a reflexive journal. Together, the preliminary themes and their reevaluation comprise phases one and two of ITI (Morgan & Nica, 2020).

In phase three, the researcher produces a new, or at least revised, set of themes based on what was learned from the data. Themes are then converted into a codebook, which is used to evaluate the new themes (Morgan & Nica, 2020). This is a radical departure from the process of open coding, in which common, significant terms found in transcripts are identified and named (Creswell & Creswell, 2018). Unlike more traditional qualitative data analysis procedures, ITI codes do not produce themes; rather, codes are developed from evolved themes and their associated memos and are used to confirm or reject listed themes (Morgan & Nica, 2020). This heretofore inductive process is then converted to a deductive process for phase four of ITI in which codes are applied to the data to confirm analysis. Morgan and Nica (2020) provide guidance about what to do if and inductively created codes do not match the data during this deductive phase.

One potential problem is that the researcher's conceptualizing has outpaced the data, so that there is little support for some aspects of the codebook. If so, there will be thematic concepts in the codebook that do not play an important role in the data, leading to their deletion from the ultimate summary of the results. The opposite problem is when major elements of the data are not captured by the coding system. In this case, there will be important thematic material that does not fit into the codebook, and thus need to be added to the results. Either of these problems implies not just a revision of the codebook, but also the reworking of the larger thematic summary itself, as well as additional memoing about the work involved in resolving the lack of fit (Creswell & Poth, 2018).

Once the process of thematic revision is complete, quotes are taken from interview transcripts that best illustrate each theme. Research integrity can be validated through the explicit declaration of preconceived outcomes based on the researcher's experience and literature review. This approach is consistent with an interpretive, or hermeneutical, approach to inquiry (Horrigan-Kelly et al., 2016; Lopez & Willis, 2004).

Methodological Integrity

Several checks were employed to ensure credibility of the research. The interview protocol was sent to research team members for review and feedback. Once feedback was received, the protocol was field tested on a member of the population who was not used in the sample for this study. Adjustments to the protocol were made as necessary to help assure instrument dependability (Jacob & Furgerson, 2012). Team member review, field testing, and revision of the protocol are all acceptable measures in increasing the dependability of qualitative research data (*Publication Manual of the American Psychological Association*, 2020).

Another method ensuring credibility and dependability in the study was built into the ITI process: Using preliminary themes in the early stages of ITI is a tool for confronting bias at the outset of data collection and throughout analysis (Morgan & Nica, 2020). Transcripts were read while listening to recorded interviews to verify accuracy of transcripts. Member checking via participant review of transcripts was used to ensure credibility and trustworthiness of quotes from participants (Babbie, 2017; *Publication Manual of the American Psychological Association*, 2020). Specifically, quotes that have been categorized into specific themes were sent to participants for their feedback to ensure accuracy.

Ethical Considerations

Institutional Review Board (IRB) approval was sought after acceptance of this research proposal, and Collaborative Institutional Training Initiative (CITI) certification was obtained. Confidentiality has been maintained. While identifying information was collected, no names or other identifying information were included in the research. All transcripts, memos, and any other documents containing identifiable information are stored in a secured cloud environment accessible only by the researcher. Only by participants revealing they have been interviewed can confidentiality be compromised. Therefore, participation was low risk.

Summary

This qualitative, interpretive phenomenological study seeks to understand the lived experiences of California elementary school teachers as they rapidly switched to ERT due to the Covid-19 pandemic. Semi-structured interviews were conducted via online meeting platforms. Interview transcripts were verified and uploaded into a web-based data analysis program. Iterative thematic inquiry (ITI) was employed to analyze data, and participants were given their selected direct quotes with accompanying thematic assignment to ensure trustworthiness of the data. ITI and interpretive phenomenology provided the basis for suggested interventions and supports required by teachers as they continue to work in an ERT environment and anticipate the next ERT event.

CHAPTER FOUR: RESULTS AND FINDINGS

The purpose of this qualitative, interpretive phenomenological study was to explore the lived experiences of elementary teachers in California who switched to ERT during the Covid-19 pandemic. Participants in semi-structured interviews provided information related to two research questions:

RQ1. What are the lived experiences of elementary teachers in California in relation to technology use and application of online pedagogy while implementing ERT during the Covid-19 pandemic?

RQ2. What supports do elementary teachers in California believe will help them deliver rich learning experiences to their students in an ERT environment?

This chapter begins with an explanation of research participant demographics and school community information. An overview of research results and explanations of how those results were obtained using iterative thematic inquiry, or ITI (Morgan & Nica, 2020), follows. Themes are then discussed in detail and are supported by excerpts of participant responses. Throughout theme explorations are details related to student schedules, technology used in schools, and communication methods between all school community stakeholders.

Results

Interviews with 10 California elementary teachers revealed similar experiences among teachers throughout the state. Research participants taught during the pandemic in locations throughout the state (see Table 1). Three were from Northern California and included both suburban and rural communities. Two were from more affluent communities in the Los Angeles and Orange County areas. Five participants were from

various parts of San Diego County. Of those five, one taught in a lower socioeconomic community, three taught in high socioeconomic communities, and one was in a middle-class community. All taught in suburban communities or areas with both suburban and rural communities. Their years of experience ranged from 6 to more than 20 years (see Table 2). Throughout at least the 2019-20 and 2020-21 school years, all participants taught students in grades 1-6 (see Table 3), and all but one taught in regular, public elementary schools. Of those, one taught a moderate-severe special education class. One participant taught in a private, Catholic K-8 school. For the purposes of confidentiality, teachers are referred to by letter (e.g. Teacher A, Teacher B).

Table 1

Research Participant School Community Details

Region	Community Type	Community Socioeconomics	Number of Research Participants
Southern California	suburban	middle-to-high	4
Southern California	suburban	low-to-middle	3
Northern California	suburban & rural	low-to-middle	3

Table 2*Research Participant Years of Experience*

Years of Experience	Number of Research Participants
5-10	2
11-15	2
16-20	0
20+	6

Table 3*Grades Taught by Participants During 2019-20 and 2020-21 School Years*

Grade Band Taught During ERT	Number of Research Participants
primary (1-2)	4
intermediate (3-4)	3
upper (5-6)	3

Research Question 1

Through the process of ITI (Morgan & Nica, 2020), I identified and refined several themes to answer my first research question about teachers' lived experiences of emergency remote teaching (ERT). I began with four initial themes I derived from my own personal experience with ERT from March 2020 through June 2021. I used these initial themes as the starting point for interpreting interview data. They included cognitive fatigue, lack of technological agility, limited educational benefit, and increased

communication. As I analyzed participant transcripts, I kept memos detailing the evolution of my initial themes. In all, I created 198 memos across the 10 transcripts. The memos documented any discrepancies I found between my initial themes and experiences teachers related.

The preconceived themes of cognitive fatigue and lack of technological agility were confirmed by the data. Limited educational benefit had some variation in the data in that teachers reported some students were academically successful and experienced growth in the ERT environment. Interview participants' perspectives on communication during ERT were mixed. Teachers tended to group communication into categories: teacher-to-student, teacher-to-families, building administration-to-teachers, district-to-families, and district-to-staff. Interviewees expressed varied levels of satisfaction with each of these subcategories of communication, which made that preconceived theme more nuanced than I anticipated.

Ultimately, all preconceived themes were confirmed by the data: cognitive fatigue, lack of technological agility, limited educational benefit, and increased communication. Each is explored in depth in the next sections.

Cognitive Fatigue

One theme that presented itself in the data as I anticipated was cognitive fatigue. This fatigue was created by both professional and personal demands. Most teachers reported professional and personal demands often overlapped as they worked from home while juggling the needs of household members who were also working and attending school from home. This combination of factors created what one participant referred to as a "perfect storm" that damaged nearly all aspects of her life.

Teachers across all schools in all settings reported intense, sustained working conditions in which they had to learn and apply new skills with an extreme sense of urgency. ERT has two defining characteristics: the transition from in-person to remote teaching happens very quickly, and resources are minimal (Hodges et al., 2020). That is an accurate description of what occurred in March 2020. Teachers rapidly collected, organized, and distributed materials for students to take home as in-person learning shut down. Students and teachers learned to navigate online meeting platforms and learning management systems (LMSs). Schools and parents searched for internet access solutions. All of this placed a cognitive load on teachers that some described as “very exhausting.” Indeed, teachers described themselves as “traumatized” and wanting “to quit” by the time they reached the end of the 2019-20 school year.

“I remember being really stressed out about researching and learning things and wanting to do best practices as much as I could in this weird situation,” stated Teacher C “I think the technology piece was, for me, the biggest hurdle.” She described the process of learning and implementing remote teaching technology as “learning a new language.” Technology-induced cognitive fatigue was repeated by all but one of the participants. Teacher B explained that while her students had some technological proficiency, they did not have the skills required to move to 100% online learning, and neither did their teachers. “You’re already exhausted at that point in the year. People weren’t ready to learn everything new,” said Teacher B. “It was so painful. [My partner] and I were counting down the days.”

Teacher D explained the various roles teachers had to play during ERT and the stress that placed on her team.

We were emotional support, tech support, trying to deliver a curriculum, trying to hold kids accountable, and it was a complete failure. It was profoundly demoralizing because if you can't be effective in your job, then it's not satisfying. It's the opposite. It's traumatizing, really. We wanted to quit, and we would have if we had been in an economic position to do so.

"Teachers worked harder," concurred Teacher F when discussing the extra effort teachers made. "They were more dedicated. They really felt for their students and the parents and their families. I have to say, as a whole, I think teachers really stepped up to it."

Contributing to the cognitive fatigue experienced by all participants was the personal stress they felt while navigating pandemic realities in their own lives. Teacher C said she was "extremely stressed for a lot of my friends because of childcare situations. ... And although my kids are teenagers, I still felt the stress of them being at home." Teacher E had many "teacher friends who started on medication for their anxiety" because they were struggling to juggle extraordinary family and work obligations.

One example of such juggling is Teacher J, who was diagnosed with a ruptured disc in her back due to extensive periods of sitting at her desk during ERT. She had to have back surgery during the 2020-21 school year, which put added strain on her household. Two of her children are college athletes attending on sports scholarships. Teacher J experienced the strain of handling their schooling and financial issues in light of closed campuses and canceled sports programs.

It was terrible. You're trying to teach, you're trying to do your job, you're trying to show up for these little people who have their own worlds, and then I had all this going on, and then my back. So it was really a very, very trying time.

While the "emergency" status of remote teaching was expected to have been limited to the last three months of the 2019-20 school year, teachers continued to struggle with remote teaching throughout the 2020-21 school year as the pandemic continued. During the summer of 2020, school administrations had some time to prepare for continued ERT by obtaining new LMSs, investing in online curriculum, and providing teacher training in online teaching tools. Teachers who participated in such preparation and training, whether it was district-sponsored or self-directed, were unable to take advantage of the cognitive relief summer break brings. Teacher E explained, "Oftentimes people think teachers just don't work hard because they get their summers off. We work really, really hard, and we need our summer breaks. [Summer 2020] was more stressful. I felt like I had an ulcer. It was anxiety every day, emails coming through; there was no break between the end of March and then the start of the school year."

When school resumed in fall 2020, some schools attempted to employ hybrid models of instruction. One model allowed parents to choose if their students would remain exclusively online or return to campus for a modified school day. Another hybrid model allowed students to spend abbreviated time on campus and work from home for the remainder of the school day. Teacher E described the cognitive fatigue she experienced working in a hybrid environment. "I felt like I was doing three jobs. I had virtual teaching, and I had on-campus teaching. When I was doing my on-campus teaching, I was still responsible for the period of time [students] weren't with me in the

classroom. So I still had to push out digital work for the afternoon time. ... That was a lot of work.” Teacher F said teaching both online and in-person students was difficult. “I felt like it limited my teaching because there were things I could do in the classroom, but I couldn’t do at home. But you had to keep everything equal.”

Despite the challenges, every participant discussed their desire for success. “I think that at the beginning, I had a lot of gusto and I was determined and feeling empowered,” said Teacher C. “I was learning new things, and my aide was really complimentary, so I felt like, okay, we’re going to do this! Then the marathon sets in and it just becomes more challenging. I would think, ‘When is this going to end.’ It was probably similar to a normal first year teaching where you go into a slump and you feel like I can’t make it; I can’t do this. Why did I think I could do this? I don’t believe anything anybody says. If someone gave me a compliment, I’d be like, ‘Whatever, you don’t even know. I’m really horrible.’ It’s like imposter syndrome.” The same teacher said she watched “almost every single one of my colleagues break down crying” in the 2020-21 school year. “It was a difficult year in teaching” that included two suicides in her rural school community.

Lack of Technological Agility

Amid the personal and professional stress experienced by teachers due to the Covid-19 pandemic, teachers found themselves having to learn various technological tools to facilitate remote learning. Some teachers were already using tools such as Google Classroom as part of their pre-pandemic practices. However, many had little experience with education technology and struggled to continue providing learning experiences to their students. To give teachers time to familiarize themselves with online meeting

platforms and to create educational experiences for students, some districts took an extended spring break in 2020, providing no instruction at all for up to six weeks. This also provided time for schools to distribute technological devices to students.

Of the research participants interviewed for this study, three said they had sufficient experience with education technology to deal with the ERT transition. The one special-education teacher interviewed had been using Google apps with her students regularly. When her school moved to Google Classroom and required new, more extensive means of documentation, she was prepared. A primary teacher had participated in her district's two-year education technology program. During the two years, she worked individually with a coach on integrating technology into her regular classroom practices. A few had used some online components of their printed instructional materials and web-based learning tools prior to ERT. Others used technology for their own planning purposes but not necessarily with their students. Several had limited technology use, which made the ERT transition extremely difficult for them.

Even those who had relatively extensive experience with education technology found the ERT transition challenging. Teacher A, who was well-versed in technology integration, required a shift in the way she utilized support staff in her special-education classroom. Those who were comfortable with technology were charged with creating educational videos for students and monitoring online student work. Those who were not comfortable using technology were tasked with making copies and creating take-home packets for students.

Teacher E, who had participated in her district's education technology program, said the program "changed my teaching" so that devices such as Chromebooks are "just

like picking up a notebook.” Yet while her students knew how to use their devices, Teacher E wanted to create a familiar online learning environment using her district’s LMS. “It was hours of frustration!” she lamented. “I wanted my [LMS] page to reflect what my classroom looked like, so when my students logged into it, they would feel like they’re at home in room 10.” Ultimately, her teenage son helped her achieve her vision. “I had no idea what I was doing!” Because Teacher E had learned how to implement educational technology, she was able to move beyond the basics of online teaching and into enhancing students’ online environment.

Teacher D is part of a 1:1 school that had traditionally used iPads with students. She participated in education-related iPad training for two years and engaged in a “tech-heavy” curriculum with her students. The iPads were “glitchy,” though, and “were problematic in many ways,” related Teacher D. The school switched to Google Chromebooks and the education apps they support. But Teacher D’s prior experience with education technology, even on a different platform, assisted her in the ERT transition. Most teachers in this study, however, struggled with the basics.

Teacher B, while familiar with education technology, had never made a slide deck. “I know how to make a slide but giving instruction in that way was something I hadn’t really done,” she said. “Slide decks are our life now!”

Teacher F had only just started learning how to use technology during the 2019-20 school year at the behest of school administration. “I really never felt I needed that much technology,” she said. “I was last to get a smartphone and things like that, so I was kind of forced into it.” Similarly, Teacher J was a late and reluctant adopter.

When I got my credential, we weren't using the internet. Everything was old school – paper, pencil, typewriters. I'm very comfortable with that, and I'm very creative, and I like that. I like being able to have a piece of paper in front of me. [The transition to ERT] was very uncomfortable for a lot of us who had been teaching for a while.

As previously stated, many districts and school sites offered technology training to teachers at various times during the pandemic, but one research participant believes it was too little, too late. "This should have been thought about before," said Teacher G. She believes the kind of technological abilities teachers have now should have been part of the education infrastructure prior to the pandemic. "We should have been trained in this prior because then it wouldn't have been such a crazy town."

Teacher H called the ERT transition "pretty crazy." "Everyone has their different level of technology expertise or are more willing to try stuff than others," she said. "It's not like we hadn't been using technology. We just hadn't been using it in this way."

Teacher C admitted embarrassment at requiring repeated technical assistance for the same issues. Her colleague would come to her classroom "almost every morning to get my sound to work. It was really humbling. But I have to say one of the things that I really took away from that was that we always tell our students to be open and to learn new things. Now I have to do that myself."

The theme of technological agility can be split into two subthemes: teachers and families. Teachers had to learn how to teach effectively online using a variety of tools, such as learning management systems (LMSs) and web-based instructional programs. Families had to learn to support their students at home with everything from internet

access to turning in work online. This study focuses on the experiences of teachers, though some family experiences with technology often converge with teacher experiences. The most prevalent of those converging issues was device availability and internet connectivity for students.

Emergency federal funding was distributed to schools to allow for the purchase of technological infrastructure, such as Chromebooks and wireless internet hotspots. Some schools were already employing a 1:1 technology policy in which every student has an internet-capable device. Others were only 2:1, meaning two students shared a single device. Still others had portable classroom sets of devices that were moved from classroom to classroom as needed. However, simply distributing devices was not enough. Not all students had internet access at home, necessitating the procurement and distribution of internet hotspots to student homes and strategic locations in communities. While technological infrastructure was procured and distributed relatively quickly, the time it took to get some schools ready for online learning contributed to lost instructional time.

Nearly every teacher interviewed stated some of their students required district assistance in acquiring internet access. Teachers A and K said their districts were quick to provide or facilitate access to free wifi for families. Teacher B said some of the schools in her district extended wifi access to school parking lots. She witnessed several students sitting in their cars at school so they could participate in online learning.

Limited Educational Benefit

Only two of the 10 teachers interviewed said they believed their students experienced academic growth from March 2020 through June 2021. They were two of the

three teachers who said they were technologically prepared for the ERT transition.

Further research is required to determine if there is a correlation between technological agility and student success in online learning as that question is beyond the scope of this study. The other eight participants reported their students experienced limited educational benefit during ERT for various reasons, including lack of attendance and lack of engagement.

Once online learning began in March 2020, some students essentially disappeared from the educational landscape. Half of the teachers interviewed said they had students who never attended any online sessions from March – June 2020. “I think I had five that never showed up,” stated Teacher D. “There was no trying to account for attendance or anything because it was an emergency,” Teacher D continued. “No one’s going to be held accountable for attendance.”

But even when students did show up to their virtual classes, they were not considered present by their teachers. “Throughout the year, I had kids who would log on, and they would be accounted for, and then they would just leave or keep the Zoom on and just be watching TV,” decried Teacher D. “I had one kid who logged in from his bed every morning, every time, and he would then just go back to bed,” said Teacher H. Teacher F noted some of her students would walk around their houses while holding their computers, enabling the teacher – and all their online classmates – to see what was happening in their home. Teacher C noted she felt compelled to keep her students muted, contributing to disengagement. “I can’t tell you how many times I heard the f-word in the background!” Many teachers described students playing games on their computers.

Others described seeing students on screen while facing another screen off camera, their faces glowing with the blue light of a television.

Intermediate teachers believe many of their students were not engaged because “the kids were told in the spring [of 2020] that they wouldn’t be graded,” said Teacher B. “So there was no buy-in,” she explained. “We didn’t do report cards,” noted Teacher K.

In addition to lack of motivation, some teachers believe educational benefit was limited due to poor lesson planning. Teacher B explained how her district grouped teachers by grade level and subject. Each group was then tasked with creating lessons for students in that grade level throughout the district. “There would be teachers from other schools planning these science lessons, and I was like, ‘Are you freaking kidding me right now? That’s what you think all sixth graders in the district should be doing in a pandemic?’” she exclaimed. According to Teacher B, some teachers seemed unaware of economic disparities between families that would prevent some from having necessary materials in their homes to complete projects. Other times, lessons would not meet teacher expectations. “Somebody else was planning a lesson for you to teach, and they’re a crappy teacher, and now my kids are getting that lesson,” continued Teacher B, who said she often abandoned district-provided lessons.

Teacher D emphasized teachers’ inability to control the learning environment as a contributing factor to lack of educational benefit. “If you can’t control the environment in which a child learns, then you have no ability to teach them,” she said. “No attention means no learning, and we had no control over the attention. So it depended on their home environment.” She added that some families seemed not to understand that “if

you're in the same room and you're talking, you're interfering with your child's education. If the TV's on, you're interfering with your child's education."

It is important to note that teachers indicated student lack of participation was a function of online learning and not necessarily because of a lack of technological agility. By nature, online learning is less engaging because students and teachers are not interacting with each other in person. Teachers believe that lack of in-person interaction made teaching and learning much more difficult and less effective. Every teacher interviewed discussed their observations of students' emotional states being adversely affected during ERT and mentioned the observable stress experienced by families. "It was really hard to see students depressed online," said Teacher C. "You could just see the looks on their faces during Zooms; they were kind of vacant, not really there." All of this, teachers asserted, combined to make teaching and learning an almost insurmountable challenge.

Increased Communication

Of the four themes identified, increased communication was the most altered through the ITI process. Initially, I believed teachers would universally praise increased communication among stakeholders. While all participants did indicate there was an increase in communication, not all believed it was worthy of praise. There were several categories of communication discussed by participants that I had failed to anticipate. Initially, I thought of communication in these four categories: school-to-families, school administration-to-teachers, teachers-to-families, and teachers-to-students. My experience in a small, private school did not include a strong district-level presence that would be actively involved in communicating with families. But the nine public school teachers

that participated in this study had much to say about district communication to both families and school personnel. The communication categories discussed by participants included district-to-families, district-to-staff, school administration-to-families, school administration-to-teachers, teacher-to teacher, teachers-to-families, and teachers-to-student. Teachers had varied responses to these seven different categories of communications, which made this theme less straight forward than I anticipated. The theme of communication was so varied that a separate study might be warranted on that topic alone.

District Communication.

This section discusses the two categories of district communication: district-to-families and district-to-staff.

District-to-Families.

Only Teachers B, G, and K expressed overall satisfaction with communication from district administration to families. Teacher C said her district was apologetic about all the communications they sent to parents, including several surveys. Teacher D said her district also sent out many surveys, but she questioned their effectiveness. “The board did survey parents a lot in terms of the models they wanted to see,” she said. “I don’t know how helpful that was because there was such a divide in the district. There was this huge demand to open schools. And then probably half the parent didn’t want school open. So there was just never a consensus, even among teachers.”

Teacher C added that communication with families was dependent on the accuracy of the district’s student information system (SIS). “If they didn’t have the right information in the system, then we didn’t know if [parents] were getting it or not,” she

said. While some teachers discussed district-to-families communication, this category is tangential to this study, which focuses on teacher's experiences rather than families' experiences. Nevertheless, it is worth mentioning as district-to-families communication did have some bearing on teacher experiences.

District-to-Staff.

District-to-staff communication was generally perceived in a negative light. Indeed, some teachers believed district communication was confusing and ineffective, however much it increased in frequency. "Nobody knew what to do," said Teacher D, who complained "we had no direction." Teacher F expressed a similar view, saying administration in her district "would come up with ideas and then switch ideas, but it wasn't communicated well." Teacher H lamented that "communication from the district has always been really spotty, so I wish there had been better communication whether it be from the board to the schools or from the district to the teachers and the staff members." She believes her district "makes rash, quick decisions" that put pressure on everyone.

Teacher E was also unhappy with communication from her district to school staff. Our district was not very forthcoming in communicating to parents, to teachers, to anything. I mean, there's a lot to be said for the people in my district, and they did not do a great job of communicating. We would get emails about [ERT information] after it was pushed out to parent groups!

They needed to be way more transparent in communication. Put it out there! Say exactly how you want it to be! The thing my district really struggled with was they were constantly backpedaling. Nobody was thinking forward. Nobody was communicating

with parents. They weren't thinking ahead of the game, so that was really disappointing. I think leadership needs to know exactly what they want to accomplish and be firm on where they're going. If you don't know where you're going, then you're just pedaling to catch up. So that was really challenging.

When districts did decide how to proceed, "a lot of times, teachers were the last people to know what was going on, which was kind of frustrating," expressed Teacher K.

School Administration Communication.

The two categories of school administration communication are discussed here.

School Administration-to-Families.

School administration's communication with families was perceived with varying degrees of success by research participants. Some had positive remarks about their school principals. "Parent notices went out from our principal or weekly parent notices went out from the district. It was all very, very positive as far as the parents' reactions," observed Teacher A. Teacher B agreed. Parent communication "was a big strength for our school," she said. "Parents were constantly complementing our principal. She was very transparent throughout the whole process. So parents did really feel like they knew what was going on, which was good."

Others were less enthusiastic about the communication between their school administration and families. Teacher C had the most to say in her critique of her principal. She believes the principal catered too much to parents. She explained, "Some parents didn't want to send their children to school for in-person instruction if they were going to be required to wear a mask. Others demanded specific morning or afternoon sessions, which caused problems when sessions were already full. Teachers felt like they

had no say.” The district, she said, was worried about losing enrollment, so principals “caved” to parent demands. “We were losing them to charter schools. We were losing them to other districts.” So her principal gave parents what they wanted without soliciting teacher input.

Like district-to-families communication, school administration-to-families communication is not a focus of this study. However, teacher responses are included here because the way teachers perceive communication between their school administration and their parents affects teachers’ experiences of ERT.

School Administration-to-Teachers.

As with perceptions of school administration-to-families communication, school administration-to-teachers communication elicited mixed responses from participants. Teacher D felt her principal left teachers in the dark. “We were left on our own to figure out how to continue teaching.” Teacher K was slightly less critical of her principal, saying, “I just think that the communication between our principal and teachers was a bit lacking.”

Many of participants’ principals tried to relay messages to staff in a timely manner through weekly staff meetings. Teacher F elaborated,

We had our faculty meeting every week, but you almost didn’t want to have it online because we were just so sick of being online. I hate to say this, but I would stick it in my ear and listen, and then I’d go outside because that was stress relief for me. Just listening to everything going on, I couldn’t take it. And then it felt like many times things would go around in a circle but not really be solved. So I

just thought, “You know what, I’ve got to do what’s best for my kids in my classroom.” And I tried not to focus on the craziness outside.

Everything was new and so nobody knew what to do. [School administration] would come up with ideas and they’d switch ideas, but it wasn’t communicated well. And then this would change or that would change. And then all the teachers – I don’t know if they thought faculty meetings were a time to let all their frustration loose. Faculty meetings could have been much shorter.

Teacher A was generally pleased with her school administration’s changes to special-education staff meetings during ERT. Once including all school special-education staff every week, ERT staff meetings moved to once per month. Special-education staffing is different from general-education staffing in that it includes specialty personnel such as speech therapists, occupational therapists, and counselors, as well as multiple classroom teaching assistants. Weekly staff meetings were now class-specific, allowing specialists to attend meetings with one classroom team at a time. School administration was able to join remotely as needed since all meetings were taking place online via video conferencing.

Teacher Communication.

Categories of teacher communication include teacher-to-teacher, teacher-to-families, and teacher-to-student.

Teacher-to-Teacher.

Teachers often collaborate in grade-level teams to share ideas and plan lessons together. When asked about collaboration during ERT, teachers again had mixed responses. “I had a really strong first-grade team, so we worked really well together,”

said Teacher C. “We love each other even more going through [the pandemic] because it was just so hard. To have each person kind of pitching in really helped.”

Social media played a role in teacher collaboration, but it was generally not well received by the participants in this study. In Teacher H’s district, teachers created a Facebook group to use for collaboration, but it was “full of rumors and negativity.” She believes much of the negativity expressed among teachers on social media “could have been alleviated if the communication was better from the district.” Teachers in another district also created a Facebook group, but Teacher E said she did not use it. Her colleagues in the educational technology coaching program had provided her with a separate group of like-minded teachers who utilized Google apps to collaborate.

Teacher E’s grade-level team, whether they had gone through the technology program or not, combined their efforts, meeting weekly to plan across subject areas. We did a good job of divvying up what each of us was going to research, find, look at videos. One was much better at looking for physical education activities for our kids, so they did that. I was kind of the word-work gal. I did all the research and found word-work activities.

She would load three weeks of word-work activities at a time into the Seesaw learning management system her team used, making the lessons accessible to her grade-level colleagues. “So we were always ahead of the game.”

Interestingly, this was a similar strategy used in Teacher B’s district, but Teacher B felt it made the curriculum too “one-size-fits-all.” The difference was Teacher E’s lessons were all planned by teachers in the same grade level at the same school, while

Teacher B's lessons were planned by a team consisting of grade-level teachers across the district.

Teacher B suggested to her team that they not only share lessons but share students as well. Her grade level had a very limited number of students in their afternoon online sessions. Teacher B suggested her grade-level team combine their afternoon online students so teachers could alternate teaching the larger, combined group. Doing so would give team members rotating prep periods. Only one of her four teammates agreed. They proceeded with the plan, which Teacher B made for a much more efficient teaching experience.

Other teachers felt collaboration suffered during ERT. Their comments are best represented by Teacher F. "I would say collaboration got worse, in a sense, because everybody was kind of wrapped up in their own issues, dealing with school and home."

Teacher-to-Families.

Teacher-to-families communication was the one category with consistently positive responses. "I constantly was in communication with my families and that was one of the things they appreciated," said Teacher H. During the spring of 2020, when ERT was in its initial phase, Teacher F said, "There were several [parents] I emailed every single day what their child needed so that they could get on board with it."

As ERT continued into the fall of 2020, many teachers began to create new systems of regular parent communication. Just prior to school beginning, several schools invited parents to come to campus to meet teachers by appointment. The in-person meetings with parents were optional for teachers, but most chose to participate "because

we got to see our students in person,” said Teacher C. “We just kept them at the door, and I sat at my table, so it was like this little kiosk.”

Teacher A began having weekly meetings with individual families. “I had outlined everything their child was supposed to have done for the week. I gave everybody 20 minutes. I typically ran 30, 40, an hour, whatever they needed.” Others relied on new or existing educational technology to assist in communicating with families. Several of those interviewed mentioned a learning management system called Canvas, which allows parents to see student grades as soon as they are posted by teachers. “That was really big,” said Teacher B, noting such technology had been used pre-ERT in middle and high schools but not in elementary schools. Another similar program used by Teacher G and other participants was PowerSchool. Email was the most used method of communication. “I actually gave my home phone number” to parents and students, confessed Teacher G.

While most teachers indicated their districts and principals were flexible in terms of the tools used for communicating with families, one was told she could no longer use the app she already had in place. Teacher H used the Remind app with all her parents, but when ERT was implemented, her district required teachers and schools to use only the ParentSquare app. This lack of flexibility was frustrating for Teacher H because her parents were already using Remind.

Teacher-to-Student.

Communication between teachers and students changed dramatically during ERT. Teachers could no longer control the learning environment, as discussed by Teacher D, because students were at home as opposed to being in the classroom. In addition to influencing educational benefit, ERT made student-teacher relationships more difficult to

maintain in spring 2020 and difficult to establish in fall 2020. “The biggest impact for me was the personal connection with the students,” explained Teacher A. For some, it maintained. But for some of the kids, particularly the kids who struggle more with their speech and language skills, that part I really felt was very lacking.”

Almost all participants described the visual associated with online video conferencing used to teach during ERT. Several teachers likened the view to the Brady Bunch or Hollywood Squares television shows. They had a computer screen of boxes in which student faces would – or should – appear while class was in session. Often, teachers would see only foreheads or ceilings because students did not want to be on camera. Some students wouldn’t turn their cameras on at all, which meant their onscreen presence was just a black box. Teacher B would sign on to her afternoon online class only to see “the black boxes and kids not talking and kids aren’t answering.” She begged her students to at least “use the chat box, kids, please!” if they weren’t going to answer verbally. This phenomenon led many teachers to feel disconnected from their students and made communication difficult.

Combining afternoon online students with her grade-level colleague not only gave Teacher B extra time to prepare lessons, but it also allowed her “to have office hours and intervention with my kids,” which is something she said she’d like to continue. Many of Teacher B’s students benefited from additional small group or individual time with her. Often the time would turn into more of a “social hour, which was what they needed,” she said, since so many of them were struggling with their relative isolation.

Teacher G engaged her students in social-emotional learning lessons (SEL) and online yoga sessions to help deal with their emotions and stress. A certified yoga

instructor, she used the morning sessions with her students as an opportunity to start their day “grounded.” When her students logged into their online class, “they’d see me, and I’d be on my yoga mat. For the first 10 to 15 minutes every day, we would do yoga and breathing.” While some of her students “grumbled” about the activity, Teacher G reminded them the sessions served as their required PE minutes, and so they had to participate.

In addition to PE minutes, California teachers are also required to provide SEL minutes. Teacher G said some of her Southern California sixth-grade students were reluctant to talk about their feelings at first, but she believes the daily lessons helped students cope. Teacher B had a similar experience with her sixth graders in Northern California. “I think it was a great thing,” she said. “Kids needed it for sure. Teachers needed it!”

Research Question 2

I anticipated the answers to research question 2 – what teachers want to be prepared for the next ERT event -- would be closely related to the themes I identified for research question 1. Teachers would want consistent, ongoing technology training, professional development in online learning pedagogy to increase educational benefit, and consistent communication among stakeholders. While these were all borne out in the data, there were some specifics and nuances to each that must be discussed.

I did not anticipate the call for emotional support for all stakeholders. I assumed an increase in professional development and communication would alleviate the cognitive fatigue teachers experienced, but the exhaustion teachers felt was also related to

the pandemic itself, necessitating mental health supports, according to the teachers interviewed for this study.

Technology training, professional development in online learning pedagogy, consistent communication, and mental health supports were mentioned by nearly all participants as necessary to successful ERT.

Technology Training

The main point made by participants was that formal school- or district-sponsored technology training at the onset of ERT was ineffective. While all teachers interviewed said they needed at least to add to their current level of technological know-how, those who were already competent with educational technology were more prepared at the outset of ERT. Teacher E was the most explicit and articulate of all interviewees when discussing this point. Her comments capture the general tone and message of the other nine participants in terms of technology use in schools. She explained that many teachers at her school were reluctant to implement educational technology prior to the Covid-19 ERT event, even though her district offered a personalized coaching program.

It was really hard to get other teachers on our campus to commit to doing the [education technology coaching] program. They were scared. They didn't want to do the tasks. They said, no, it's too much time. It's one more thing to do. I learned though that it's not one more thing to do. It's doing what you're doing, just differently. So I was open to doing it and was very thankful I had because I was way ahead of the game in terms of the technology

when ERT became a necessity. Teacher E continued, saying she believes use of educational technology should not be optional for teachers.

I think moving forward, teachers need to know how to do these things. No one had pushed them to learn how to do them. We need to know how to do them before we get to some catastrophic disaster like we did. And everybody's trying to figure out how to do something that quite honestly, they should have known how to do already. We shouldn't have been so behind the times. We need to encourage teachers to be a little more innovative, try new things. It's really important.

Teacher B went further, implying technology training for teachers during an ERT event is ineffective. "I don't think training would have done it because people were not in a place to learn anything new," she said. Teacher H agreed.

Now don't get me wrong. I don't mind getting my per diem to sit in front of a computer and pretend to watch some videos, but am I going to get a lot out of it? No! I learned Canvas by doing it. I didn't learn Canvas from those lessons.

Students also required additional technology skills during ERT. Teacher E believes teacher reluctance to use technology in their classrooms hampered their students' transition to ERT, particularly for younger students.

We have a lot of teachers at my campus who are – up until the time that we went to Covid – they didn't even let their students actually log onto a device by themselves. At the start of the pandemic, their first graders had literally no idea what their usernames or passcodes were because they felt like kinders and first graders were too young to log in. So when they had computer time, the fifth grade students would come in and log into the computer for them.

All the teachers who were reluctant to use technology in the classroom prior to ERT who participated in this study believe they now have educational skills they will continue to use with their students the in future. Teacher J expressed this best, saying, I feel really proud of myself, actually. I feel like I climbed a huge mountain. I really like Google Classroom. I really am grateful that I was pushed into having to learn it because it opened up all those other avenues and things that I can use with them.

Families required technology support as well. To address that need, some districts assigned staff who were dedicated to answering technology questions from families. “In the fall [of 2020], the district did put together a team to support parents, so there was a family tech line. They did learn that from the spring [of 2020] and implemented it,” said Teacher D.

However, even with newly acquired skills and lessons learned from spring 2020 and the 2020-21 school year, Teacher F is concerned her small, private school no longer has the resources to make ERT work. “I do worry about [going back online] because I don’t have the support there anymore,” she said. “Our staff has been cut back in many ways, so the support for that would not be there like it was the first time.”

Online Learning Pedagogy

Even with appropriate technology in place and all stakeholders able to use that technology, teaching students online requires a different approach than teaching them in person. Teacher D was the most explicit of those interviewed for this study when asked about training in online pedagogy. All teachers in her district were told to read a book about how to teach online, “which wasn’t helpful,” she said. “It was all the obvious things we’d already figured out in our trial by fire.”

Frankly, we had already learned quite a bit on our own the last few months that we didn't need some professor at [a local university] telling us, because they teach educational courses, how to do it. We know more than he does. But you know how it is. It's a very top-down system and the assumption is management knows more than you, but it's actually the opposite.

Other interviewees discussed pedagogical elements they would – or would not -- use when the next ERT event occurs. Teacher G said the next ERT event will be easier because she now understands that ERT necessitates even more judicious lesson planning than non-ERT teaching.

I definitely think it would be easier because you know what you can and what you can't do. You don't have to put that pressure on yourself because you know that it's not all possible. It isn't. You just have to hold yourself accountable and do your job. You can still do your job and not have it be overwhelming. But I think we also just have to allow ourselves not to be overwhelmed and say, "I can't do that. I can't teach all of those lessons, but I can teach two of them. I can't teach all of those units, but I can teach one of them." It's like that anyway. Have you ever gotten through every single book, all the curriculum, you're supposed to in one year? You always have to stuff leave out. It's impossible.

Collaborative lesson planning was employed by some schools and districts with varying degrees of success. Teacher C said she wished her district had organized a system for shared lesson preparation so that teachers could share the burden and lighten each other's loads. Teacher B, however, found district-level collaborative planning to be problematic.

I feel like when they made us all do the same thing, there's still a part of me that questions, "Was that the best thing?" I get it that people were in the pandemic too. That people were thinking we have to do this to save teachers who don't know what they're doing. But I wish that we would've been given an option of planning those lessons but still giving [our students] what they needed.

Teacher H agreed but added the caveat that ERT by nature is not what she would consider effective teaching.

When you have teachers who don't teach at your school, you have teachers writing language arts lessons for student that they're familiar with that might not necessarily be what's going to work for your own students. It becomes kind of a one-size-fits-all curriculum, which is what emergency teaching is. It wasn't teaching; it was emergency switching from in-person to online.

Teacher J went further, explaining that any lessons planned for online learning at her district needed to be supplemented with paper-and-pencil lessons students could complete offline. "There were some teams that were formed that wrote curriculum, but not all students had access to Chromebooks" at the time of ERT implementation, she said. "But we also needed curriculum to be written and sent to the print center because not every kid had online access."

For those teachers whose students did all have online access, web-based education apps were key. Teacher A said the program she regularly uses with her special-education students "upped their game" at the start of ERT, making "it very easy to go both in person and online." Activities that used to require students to cut and paste or engage in other hands-on activities are now "all embedded. They can actually do drag-and-drop,

cut-and-paste. So they can do a lot of the instructional activities without ever touching a piece of paper.” Teacher A acknowledges that activities like cutting and pasting are still skills that need to be taught in their own right, but they are no longer skill that are necessary to complete assignments targeting other academic areas.

As a special-education teacher, Teacher A employs small groups as a rule for in-person and online teaching. General-education teachers in this study believe ERT makes smaller groups essential for effective teaching and learning. All teachers interviewed for this study at least mentioned in passing that they found small groups to be more effective when teaching online. “If we had to shut down again, I would probably do more small groups for a longer period of time, because when it’s whole-class, you can’t engage with them as much, explained Teacher F. Keeping students’ attention was also a concern of Teacher C who had an additional personal burden.

I had extreme social anxiety about even being on a screen, just people watching me and the show I had to perform. I was teaching first graders, so I know their attention span. And I just thought, how is this even going to be possible? I’m going to be doing Mr. Rogers all day without the whole support behind me.

Teacher E explained how she met not just with small groups but with individual students. About twice per day, she would engage in guided reading activities with individuals.

I could see what they were doing because I was controlling the book. I had the book, I would say, “Okay, tell me when it’s time to turn the page.” And then they would read from the screen, but I had the book with me. And so then I could gauge kind of what

reading strategies they were using. So when I went back into school with them, I had all of their guided reading levels.

In terms of teaching environment, Teacher A spoke not just to her students' needs but to her own as well. Teachers in her district were required to teach from their homes as opposed to being on campus teaching online from empty classrooms. "I definitely would have taught from campus because I hated the running back and forth to pick up materials and to have all this stuff stored in my house," she said.

Teacher G believes her district "should have never offered hybrid. They should have had teachers specifically either be online or in person." Teacher E's district reorganized itself into online and in-person categories. Teachers and students who wished to remain online were matched up regardless of geographical boundaries. Teachers and students who wished to come back to campus for in-person instruction were similarly reorganized and split into cohorts so that only half were on campus at any given time. This allowed for social distancing required by state and local health officials.

Judicious lesson selection, school-level collaborative lesson planning, smaller online groups, individual student-teacher meetings, and selection of either online or in-person learning were the principal suggestions made by interviewees on the topic of pedagogy. Online pedagogy, however, is a study unto itself and is beyond the scope of this research. Abundant literature exists in this area, but until this Covid-19 ERT event, it was largely applied by educators who set out to teach online. "We never even considered teaching online," decried Teacher H. It would behoove educators to explore such literature on best practices for online teaching and learning so they are better prepared for the next ERT event.

Consistent Communication

After reviewing the data teachers provided about the various levels of communication between home and school and among educators, it is clear districts need a consistent communication plan in place prior to an ERT event. Some teachers, like Teacher H, were concerned with the mode of communication. Teacher H wanted to continue using the app she had already employed pre-ERT to communicate with her parents. Her district, however, required teachers to switch to a different app the entire district would be using. This made more work for Teacher H who had to learn a new communication app in addition to the other technology she needed to learn for online teaching. Districts should consider implementing a single communication app prior to any ERT event so there is limited transition required when an emergency arises. This would be particularly useful for teachers who rely on low-tech communication methods, such as sending home paper notes, and who do not have a technology-based parent communication method. In the absence of a universally used app, teachers should be allowed to use the apps they currently have in place to reduce cognitive fatigue.

Teacher F, who had been extremely low-tech prior to the pandemic, said she preferred to communicate with parents via text messaging during ERT. I would definitely give parents more access to texting options. It's easier to communicate with parent texting versus emailing. I wasn't able to check emails when I'm teaching. I didn't master that whole thing. I would probably have parents text me more so that I could deal with the problem right away.

Teacher H wanted to use email to communicate with her students but was unable to do so because of district policy. "Part of the problem with elementary in our district is

that the kids don't have access to their school email. So the only way to communicate with the students was through the parents," she explained.

Teachers A and B discussed using online office hours to communicate with their students. They set aside specific times during the week when they would be in an open video conference link, and students could join when and if they desired. Some teachers mentioned using a similar method for parents. Office hours were characterized as successful by those who employed them.

Most teachers, though, were concerned less with the mode than with the content of communications, saying information from districts or schools was confusing or constantly changing. Now that schools across the state have endured an ERT event, communication plans can be created with the benefit of hindsight. Consistent messaging around internet access, technological devices, online learning protocols, and technical support can be achieved based on Covid-19-informed experiences. That messaging needs to be articulated and disseminated throughout districts and school communities, so stakeholders have access to that messaging when the time arises.

Mental Health Supports

The most surprising information to come out of teacher interviews was the call for mental health support for all stakeholders. As a teacher during the pandemic, I was aware of my students' decline in emotional wellbeing. I attributed the similar decline in my colleagues as a symptom of the cognitive fatigue they were experiencing. While that was certainly a contributing factor, teachers were also experiencing the stresses of living through the pandemic on a personal level. Their own families and friends had needs outside of school. Their students' parents were struggling with the demands of work and

parenting. Life was more difficult for everyone on a variety of levels, and interviewees expressed unmitigated desire for increased mental health services across populations. Speaking specifically about teachers' mental health needs, Teacher E elaborated, I think our mental health wasn't really thought about in any of it, really. Given the circumstances of the pandemic, life was very stressful for everybody. Even moving forward, I don't hear about anything that's there to support teachers.

School administrations were focused on the social and emotional wellbeing of students' families and only considered teachers' on-the-job wellbeing, she continued. "That was just my job, let alone what was going on with my own children at home, having to learn.

Thinking ahead, if we were to ever get to another point where something like happens that's worldwide, how are companies, schools going to address their employees' needs? Yes, you still need to be responsible for doing your job, but then how are we also taking care of your social and emotional part? I know in education, that's the thing that's been left behind in everything. We don't have enough counselors. We don't have enough teachers who are working on kids' social and emotional growth, and I think that's a really big piece. That somehow needs to be more on the forefront – the social and emotional piece of all of it, just in humanity in general.

Many of the teachers interviewed for this study discussed the need additional school counselors. Teacher B indicated her district's counselors are preparing social-emotional lessons that will be taught throughout her district.

Teacher C was especially cognizant of teachers' needs for mental health care during the pandemic as one teacher in her district committed suicide early in the 2021-22 school year. Watching her colleagues go through such emotional turmoil while enduring her own cognitive overload caused her to pull back from school-related duties she otherwise would have performed.

I wasn't trying to absolve myself from any kind of responsibility. I just felt like things would get really built up, and every new change would just set teacher completely off their rockers.

Once again, Teacher E articulated best what interviewees communicated. I'm hoping through all of this, people will realize how important that part is for our students and adults in that situation. During all of my office hours, it was mostly parents who were crying, who were so overwhelmed, and I've had lovely families who have fallen apart. Parents who are like, 'I don't care if CPS comes and takes my kids. Just take them away!' Because they are totally at their wits end. They have no idea what they're doing.

I could see just in my small class of 26 how many families fell apart in that short amount of time and how they weren't getting any support. I don't even teach at a school that is low income, so I'm not even in an area where things could really be devastation. And yet they still were for a lot of my families. That was really eye opening.

Findings

Because this is an interpretive phenomenological study, I can aggregate the qualitative data I collected and extract meaningful information supported by rich, direct quotations from teachers about their experiences. This study has illuminated what

teachers experienced during the Covid-19 ERT event and has provided evidence for concrete proposals on how to prepare for and act in the next ERT event.

The predominant finding of this study is that lack of technical agility, increased communication – be it good or bad -- and persistent worry about educational benefit all contributed to an overarching theme of cognitive fatigue for teachers. Teachers require training and experience with educational technology prior to an ERT event. Providing training at the onset of an ERT event contributed to teachers' overall cognitive fatigue. The two teachers that had regularly employed educational technology in the fabric of their pre-ERT pedagogy were the only two teachers who reported their students experienced positive academic growth. More research is required to determine if there is a causal relationship between technological agility and educational benefit.

Communication increased among all stakeholders, though the method and content of that communication was largely perceived in a negative light. Teachers tended to group communication into categories, including district-to-families, district-to-staff, school administration-to-families, school administration-to-teachers, teacher-to teacher, teachers-to-families, and teachers-to-student. Their opinions on each communication category differed. Some teachers believed their districts handled outward-facing communication well, but they were critical of internal communication among school and district circles.

Summary

The Covid-19 ERT experiences of teachers in this study can be categorized into the four major themes of cognitive fatigue, lack of technological agility, limited educational benefit, and increased communication. Cognitive fatigue was created through

a confluence of professional and personal stressors. Lack of technological agility on the part of teachers, concern about the lack of educational benefit for their students, and frustration with increased but inconsistent communication among all stakeholders all contributed to teachers' overall cognitive fatigue.

Participants indicated they would be better prepared for the next ERT event if they had ongoing professional development in the areas of technology integration and online learning pedagogy. This professional development should be provided regularly prior to the necessity of using ERT since nearly all teachers in this study reported extreme stress related to learning required skills at the moment those skills were required. All teachers expressed a desire for improved, consistent communication among all stakeholders, including school district, school building, and classroom personnel. All teachers also articulated the need for improved mental health supports for stakeholders in all categories, including education professionals, families, and students.

CHAPTER FIVE: PROPOSED SOLUTION AND IMPLICATIONS

This study reveals elementary teachers in California experienced overwhelming cognitive fatigue brought on by stakeholders' lack of technical agility, confusing communication, and concern about students' educational progress. In their interviews, teachers described actions and processes they believed would alleviate their negative experiences in the next ERT event. I propose leaders at school and/or district levels use the ERT Blueprint to help them address teachers' concerns and make the next ERT event less chaotic.

Aim Statement

The aim of this study is to help teachers, schools, and districts prepare for the next ERT event by understanding the experiences and needs of teachers in the current Covid-19 pandemic.

Proposed Solution

Advanced planning can help ensure the supports teachers desire are available in the future. The findings of this study inform specific actions that can be taken by districts and schools as they prepare for the next ERT event. Education leaders can use an ERT blueprint that is customizable for use at the school, district, or state level. The blueprint I propose in this chapter addresses issues found in this study among California elementary teachers. Those issues include cognitive fatigue, the need for technological agility, evidence of educational benefit, and effective communication. Teachers asked for specific actions from school and district leadership that they believed would alleviate the struggles they encountered during ERT.

As an interpretive phenomenological researcher, I am tasked with combining my understanding of teacher experiences with the supports they say they want to create a solution that addresses their main concerns. I have designed a blueprint for use by school and/or district leaders to ensure they consider teachers' various concerns in preparation for the next ERT event. The blueprint is an editable spreadsheet in which leaders document actions to be taken when planning for ERT. The spreadsheet is native to Google Sheets, though it can easily be converted to Microsoft Excel or PDF formats, depending on the user's preference.

The spreadsheet is organized into four tabs with the following categories: infrastructure, programs, communication, and school schedule. Each tab includes guiding questions for the user to consider when making decisions about ERT implementation. Tabs also include categories appropriate to their topics.

Evidence that Supports the Solution

The blueprint proposed in this chapter could help facilitate the creation and maintenance of necessary ERT supports identified by teachers in this study. Additionally, the blueprint addresses issues related to ERT, educational technology integration, and online pedagogy found in extant literature. Common themes found in the literature include the necessities of communication, relationships and mental health, professional development, assessment, and planning. This study adds particularly to the themes of communication, relationships and mental health, professional development, and planning.

In terms of communication, this study found that more communication is not necessarily beneficial. Clear, consistent messaging around a cohesive plan of action is critical to successful ERT (Leech et al., 2022; Liao et al., 2021). Teachers in this study

expressed a desire to better connect with their students during ERT, which was also found in the literature (Jones & Kessler, 2020).

Consistent with the literature, this study finds teachers experienced significant mental health challenges while navigating ERT (Kim et al., 2022; Pressley, 2021; Pressley et al., 2021; Robinson et al., 2022). Nearly all participants expressed a desire for more mental health services available to them, as well as to their students. Feelings of anxiety, stress, and burnout were common among study participants. Teachers in this study expressed the need for more and better collaboration with their colleagues as well as improved connections with their students.

When teachers are not confident in their abilities troubleshoot technical issues as they arise, they are less likely to adopt educational technology as an integral part of their pedagogy (Darling-Aduana & Heinrich, 2018; Mahdum et al., 2019; Tallvid, 2016). Additionally, teachers found their self-efficacy declined when they were forced to use technology with which they were unfamiliar (Pressley, 2021). Teachers in this study reported feeling overwhelmed by their lack of technological agility and believed it affected their teaching. Conversely, teachers who feel comfortable using educational technology are more likely to use it to produce effective learner-centered experiences (Sangkawetai et al., 2020). The two teachers in this study who reported the highest levels of experience and comfort with technology were also the only two teachers who reported their students experienced acceptable educational benefit. Continued, ongoing professional development for teachers in education technology was found to be a desired support among this study's participants as well as those in recently published studies.

Evidence for the Infrastructure Section

Items on the infrastructure tab of the blueprint include internet access, personal devices, teaching devices, technical support, SIS, and mental health support. These items are included because teachers in this study indicated many students did not have adequate internet access or personal devices such as laptops, which prevented or hindered them from participating in online learning (Darling-Hammond et al., 2020; Evans, 2020; Ferro & Anderson, 2020). Teachers also described the need for technical support at all stakeholder levels – teachers, students, and parents. Knowing who to contact and how was critical to timely and much-needed assistance. District use of common a SIS and LMS can help smooth both communication and the transition to online learning. A comprehensive SIS with current student and parent information is essential to effective communication above the classroom level. One teacher in this study explained her district attempted to reach families via their SIS, but because contact information was missing or not current, communications failed to reach their destinations.

Teachers should have a basic understanding of online pedagogy prior to an ERT event to reduce transition downtime and increase educational benefit (N. L. Leech et al., 2022; Pryor et al., 2020; Tobin et al., 2021). This can be accomplished for new teachers through their teacher-education programs. Teachers already in the field could participate in professional development designed to expose them to various online teaching tools and methods. This is, of course, assuming the internet is accessible during the next ERT event.

Mental health support for all stakeholders was a prominent finding of this study and was consistent with the literature (Jones & Kessler, 2020; Robinson et al., 2022).

ERT planners need to have mental health infrastructure in place to support everyone involved in ERT, particularly teachers, students, and parents. The pandemic exposed a need throughout California for more mental health supports. Mandated social-emotional learning programs and access to school counselors was highlighted by nearly all study participants. Several said their districts are now funding increases in mental health services. Such services are necessary for both students and school staff during ERT, according to this research.

Evidence for the Programs Section

Study participants often mentioned either the usefulness or the lack of common programs used among teachers. Such programs included learning management systems (LMS) and common subject-specific programs. Several teachers in this study explained that primary grades in their schools used SeeSaw, while upper grades used Google Classroom for their LMS. The specific program used is not at issue; rather, the use of a common program was explained by teachers to have been beneficial to teaching and learning. Having a common platform in which to curate and distribute lessons and accompanying materials helps streamline and simplify online learning (N. L. Leech et al., 2022; Liao et al., 2021). When teachers are experienced in using common technological programs, they will be better able to use those programs while collaborating and communicating. As shown in this study, the recent Covid-19 ERT event has pushed districts, school, and teachers into using such technology. Many of those districts, schools, and teachers are planning to continue using the programs they acquired during the Covid-19 ERT event.

Evidence for the Communication Section

As with technology, it would behoove districts and schools to establish a common method of communication with parents prior to the next ERT event. Doing so would ease the transition of emergency communication by allowing all parties to use familiar processes and technologies. The content and frequency of ERT communication needs to be clear and consistent (A. A. Koehler & Farmer, 2020; McCarthy & Wolfe, 2020; Petillion & McNeil, 2020; Schuck & Lambert, 2020). This study found that increased communication is not necessarily productive. Teachers wanted clear and consistent information both for themselves and for the families they served. Decision makers should have a plan in place prior to ERT about how to distribute materials to students and families, including technological devices and educational materials.

The communication tab of the ERT Blueprint includes and builds on the various categories of communication found in this study for planners to consider. Communication categories in the blueprint include district-to-schools, district-to-homes, school-to-staff, school-to-homes, teacher-to-teacher, teacher-to-parent, teacher-to-student. By considering the guiding questions provided, decision-makers will be able to develop communication plans that account for the many avenues through which communication flows. They will be asked to plan who is responsible for creating and disseminating information as well as the frequency with which information is shared.

Evidence for the School Schedule Section

One common complaint among research participants was about school schedules. Some teachers felt they were not included in scheduling decisions, preventing them from exercising agency over their own safety and wellbeing during the pandemic. Others were

frustrated by ever-changing school schedules that allowed for students to move from online-only to hybrid schedules or switching between cohorts. The lessons schools have learned about scheduling in a public health emergency should enable decision makers to plan ahead. Leaders can collect information via survey about which teachers and students want to be in person, online, or a combination of both, and use that information to develop appropriate school schedules in a timely fashion.

Summary of Evidence

Each section of the ERT Blueprint addresses themes evidenced in this study and existing literature. Cognitive fatigue encompasses the stress, anxiety, and mental health strains experienced by teachers. This overarching theme is built on the themes of lack of technical agility, concern over educational benefit, and confusing, inconsistent communication. All of this is addressed through the blueprint's attention to training, mental health resources, communication, and scheduling considerations.

Implementation of the Proposed Solution

Every year, California schools are required to review, update, and practice their emergency preparedness plans (School Safety Plans, 2019). These plans include schoolwide responses to fire, earthquake, and on-campus criminal activity. I propose ERT preparedness be included in those plans. A viral outbreak or other pandemic situation similar to Covid-19 certainly qualifies as an emergency situation, and planning for such an event fits easily into the current requirements of schools.

Factors and Stakeholders Related to the Implementation of the Solution

School leaders are already required to plan for schoolwide emergency situations (School Safety Plans, 2019). Since 2020, all Individualized Education Plans (IEPs) for

special-education students in California have been required to provide for circumstances in which remote teaching might become necessary (Instructional Planning and Individualized Education Program, 2020). It makes sense to have a schoolwide ERT provision as part of school safety plans. These plans are already spearheaded by principals and developed in detail by school safety committees. Procedures contained within the plans are practiced by entire school populations. Several emergency plan templates have been created by both government agencies and private entities to assist schools in the development of their safety plans. This ERT Blueprint would be an extension of that documentation policy.

Leadership teams will require additional time for their already scheduled meetings, allowing them to add the ERT Blueprint to their emergency planning time. It would behoove school principals and leadership teams to include parents in the completion of the ERT blueprint since parents are affected by ERT implementation. This is particularly true for school scheduling that includes an option for online or hybrid learning. Including parent input could also add time to the development process. Principals should keep this in mind when assigning adjunct duties to teachers. Because emergency planning is already a regular part of school operations, adding the ERT Blueprint to the process would minimally impact planning practices.

Timeline for Implementation of the Solution

Were I to pursue implementation of the ERT Blueprint in California elementary schools, I would begin by distributing the blueprint to study participants in the current school year. Participants would collectively act as a sort of focus group for the instrument, providing feedback on its content and use. I would then ask each participant,

if they were so inclined, to present the blueprint to their school principals. Their participation in this study need not be revealed, protecting their anonymity. Principals would be asked to use the blueprint in their schools as a pilot program. If principals agree to pilot the blueprint, they would meet with their school safety team to make the necessary team meeting schedule adjustments. Blueprint completion would take place over the course of the school year, and principals would report back to me on their progress in the spring.

I would review pilot program feedback over the summer of 2023 and make appropriate adjustments to the blueprint as needed. The I would expand the pilot program to nearby school districts, soliciting their feedback. The process would continue year-by-year, ostensibly extending ERT Blueprint use throughout the state.

As described here, the initial pilot would take an entire school year. The secondary pilot at the district level would take another entire school year. It would be my hope that the concept of an ERT blueprint would expand faster than my pilot project, giving rise to several versions that could be used by schools, similar to current school emergency plan templates.

Evaluating the Outcome of Implementing the Solution

Unfortunately, the best way to evaluate the ERT Blueprint's effectiveness is to observe its implementation at the outset of another ERT event. ERT cannot be practiced in the same way as fire or earthquake drills. Nevertheless, certain components of the ERT Blueprint can be tested. For example, teachers can be polled as to their perceived proficiency with programs listed on the ERT Blueprint. Tests of communication systems can be conducted with parents. Teachers can showcase their skills with various aspects of

online teaching during team meetings. Ultimately, as with any emergency preparedness, there is no real way to know how your planning will pay off until the emergency occurs.

Implications

Practical Implications

With schools now open again for in-person learning, it is safe to say the Covid-19-induced ERT event has ended. But we would be shortsighted to think we will not again be faced with the necessity of ERT. There will be other pandemics, natural disasters, or other emergencies that require innovative teaching and learning practices. Using the experiences of California elementary teachers, the ERT Blueprint provides educators with a concrete plan of action when ERT again becomes necessary.

Schools were blindsided in March 2020 when in-person learning ceased to be an option. This blueprint, created out of the experiences and requests of teachers, helps schools continue with their proverbial eyes wide open to the possibilities of ERT. By considering the guiding questions in the ERT Blueprint, stakeholders will hopefully keep innovative educational practices at the forefront. Teachers will annually be forced to question their readiness for ERT, including their technological agility and effectiveness of their online pedagogy. Just as the sad reality of school shootings has caused teachers to be ever mindful of escape routes and hiding places, Covid-19 and the implementation of the ERT Blueprint will keep ERT awareness front and center. That can only be good for stakeholders.

Implications for Future Research

This study is limited in that it includes only the experiences of ten California elementary teachers. While consistent with the emerging literature related to ERT during

Covid-19, much more research is required to explore areas related to educational benefit and access equity for students. A strength of this study is the rich, meaningful responses from research participants. This study provides ample first-hand descriptions of teacher experiences that support the proposed solution in the next chapter. Drawing from those teacher experiences can help California schools plan for the next ERT event.

This study has provided extensive descriptions of teacher experiences with ERT, but it has also surfaced questions for future research. Most notably is the connection between teacher technological agility and student educational benefit. Quantitative research should be conducted investigating a possible relationship between the two. If a causal relationship can be shown, then the implications for teacher proficiency with educational technology become even more urgent. In the same vein, I would be interested to learn how technological agility relates to teachers' cognitive fatigue. A grounded theory approach to this topic could reveal connections between the two phenomena.

Further research could also be pursued specifically with teachers of primary grades in which reading instruction is paramount. How can ERT be most effective with these young learners? A popular adage among educators is the students learn to read in grades K-2, but they read to learn in grades 3 and up. How can primary teachers best support emerging readers in an online learning environment? It would be interesting to see a mixed-methods study on this topic, soliciting student and teacher experiences and comparing those experiences with quantitative student data.

Implications for Leadership Theory and Practice

Successful implementation of ERT required a herculean effort on the part of all education stakeholders during the Covid-19 pandemic. Leadership was required at every

rung of the educational bureaucratic ladder to navigate the intimidating ERT landscape. With each interview I conducted, I was reminded of the value of distributed leadership. From an education perspective, distributed leadership is defined in the literature as division of labor necessary to accomplishing the broadening and deepening of school administration tasks across horizontally oriented networks of leaders (Gronn, 2002; Spillane et al., 2004). Spillane (2004) adds that leadership distribution is best accomplished from a context- and task-specific perspective rather than creating generic, nonspecific organizational structures. Distributed leadership models are positively associated with teacher self-efficacy, job satisfaction, and student achievement (García Torres, 2019; Y. Liu et al., 2021). In a recent study in Colorado, distributed leadership practices were specifically connected to successful implementation of educational technology integration (Bingham, 2021).

The ERT blueprint proposed in this study relies on distributed leadership. No one person – indeed, no one team of people – can accomplish all the preparation tasks associated with ERT. It requires thoughtful, context-specific consideration of all areas listed in the blueprint, and perhaps more, depending on school population needs.

One of the needs consistently highlighted by study participants was personal support. That support was often articulated as mental health interventions as well as practical solutions to basic issues like childcare for teachers. Education leaders worked tirelessly to shift from in-person to online teaching with a focus on technology and instruction. A more “humanized” approach to the needs of teachers and students should be emphasized as we prepare for the next ERT event (Edwards & Magill, 2022). The

ERT blueprint provides guiding questions for leaders to ensure “humanized” approach to ERT is considered for all stakeholders.

Such an approach is consistent with Jesuit leadership values. *Cura personalis* is the Jesuit value defined as “care for the individual person” (Creighton University, n.d.). Applied to the context of this study about teacher experiences, that means designing an ERT approach that views teachers as whole people and not just as facilitators of educational experiences. We must care for teachers as whole persons with physical, mental, emotional, and spiritual needs. They have families who rely on them and unique, personal needs. And while their resources may be great, humans have limits. Our approach to ERT must consider teachers in this light. The ERT blueprint can help highlight that aspect of care for the whole person when planning for the next ERT event.

This study and its resulting ERT blueprint also highlight the Jesuit value of “women and men for and with others.” Leaders who espouse this value are committed to pursuing justice and facilitating equitable conditions for all (Creighton University, n.d.). The teaching profession tends to attract these leaders who care about and dedicate themselves to children and their education. Issues of equity and justice for children were expressed by all the teachers in this study. It is the goal of the ERT blueprint to help leaders consider equity and justice when planning for the next ERT event.

Summary of the Dissertation in Practice

The problem addressed in this study was California elementary teachers’ lack of preparedness for an immediate switch to online learning due to the Covid-19 pandemic. Referred to as emergency remote teaching (ERT), the rapid transition from in-person to online teaching began in March 2020 and has affected school practices even to the date of

this publication. The aim of this study was to help teachers, schools, and districts prepare for the next ERT event by understanding the experiences and needs of teachers in the current Covid-19 pandemic.

This study explored the experiences of 10 California elementary teachers during the Covid-19 ERT event and solicited their ideas for how to better execute ERT in the future. Iterative thematic inquiry (ITI) was applied to explicitly declare researcher bias. ITI was also employed to ensure that bias did not diminish the reliability and trustworthiness of the qualitative data analysis. Teacher experiences were categorized into four main themes: cognitive fatigue, lack of technological agility, limited educational benefit, and increased communication. Each theme was explained in detail through an interpretive phenomenological approach to research participant interview responses. Teachers articulated several supports they believed would benefit all stakeholders in the next ERT event, including ongoing, sustained technology training and professional development in online learning pedagogy, clear and consistent communication, and robust mental health support.

Taking teacher experiences and requested supports into consideration, a customizable blueprint was developed to help school communities prepare for the next ERT event. The blueprint includes planning sections for infrastructure, programs, communication, and school schedules. Each section includes guiding questions for users to consider when making decisions about ERT implementation. Each section also includes categories by stakeholder, appropriate to their topics. The blueprint can easily be edited to suit the needs of individual school communities. Its completion can be part of schools' annual comprehensive school safety planning process.

Ideally, an ERT blueprint can serve as a framework for school ERT practice with all parties having contributed to and developed specific sections while fostering a “big-picture” perspective of ERT requirements. The blueprint can then be followed when necessary, limiting the chaos and confusion experienced during the Covid-19 ERT event. Realistically, emergencies by their very nature produce chaos. Perhaps engaging in the blueprint-creation process, schools will find themselves in a more proactive rather than reactive position in the next ERT event.

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Appendix A

IRB Approval



Office of the Provost
Research Compliance

DATE: 05-Jul-2021
TO: Mougeotte-Foster, Julie
FROM: Social / Behavioral IRB Board
PROJECT TITLE: Emergency Remote Teaching
REFERENCE #: 2002057-01
SUBMISSION TYPE: Initial Application
REVIEW TYPE: Exempt
ACTION: APPROVED
EFFECTIVE DATE: 05-Jul-2021

Thank you for your Initial Application submission materials for this project. The following items were reviewed with this submission:

- Creighton University HS eForm~

This project has been determined to be exempt from Federal Policy for Protection of Human Subjects as per 45CFR46.101 (b) 2.

All protocol amendments and changes are to be submitted to the IRB and may not be implemented until approved by the IRB. Please use the modification form when submitting changes.

If you have any questions, please contact the IRB Office at 402-280-2126 or irb@creighton.edu. Please include your project title and number in all correspondence with this committee.

Institutional Review Board
☎ 402.280.2126 | ☎ 402.280.3200
Dr. C.C. and Mabel L. Criss Health Sciences Complex I
2500 California Plaza Omaha, NE 68178

creighton.edu
creighton.edu/researchservices/rcocommittees/irb

Appendix B

Interview Protocol: Exploring ERT experiences of K-8 teachers

Time of Interview:

Date:

Place: Zoom call (necessary due to current social distancing orders)

Interviewer: Julie Mougeotte Foster

Interviewee:

Position of Interviewee:

Introduction Script: Thank you for agreeing to be interviewed for this research project. As a reminder, I want you to know that your responses will remain confidential. Neither your name nor any identifying information will be included in the submitted research, and any identifying information about you will be kept in a secured cloud environment accessible only by me. This interview should take approximately 45 minutes. I am seeking to understand teachers' experiences with emergency remote teaching during the Covid-19 pandemic. Specifically, I want to know what it was like for K-8 teachers who had to switch immediately to 100% online learning in March 2020. I will use that information to help educators prepare for the next time we have to close schools due to an emergency. Please know you can take a break at any time. You may also feel free to ask me questions at any point during the interview.

Questions:

- Tell me about your current role at your school.
 - How long have you been there?
 - What grade/subject do you teach?
- Describe your experiences shifting to online learning in March 2020.
 - Delayed online start?
 - Professional development?
 - Connectivity issues?
 - Communication with families? Survey?
 - Blended learning?
 - LMS?
- How did you use technology in your job before the pandemic?
 - Email/calendar/planning?
 - Apps/programs for student use?
 - LMS?
- What is different about your technology use now?
- What did your district/admin do to help you prepare for the transition?
 - Previous PD on tech?
 - Equipment? Tech & PPE?
 - Collaboration efforts?
- How would you characterize your personal success at ERT? Your school's?

- Successful/unsuccessful?
- Specific actions that worked/didn't work?
- Looking back, is there anything you wish you and/or your school/district had done differently?
 - At the beginning?
 - In the fall?
- What are your school's/district's plans for instruction in the 2021-22 school year?
- Describe a memorable time about...
- Take me to a time when...what was that like?
- If you know no one could ever trace or know where the response came from, what would you tell me about.....?
- Describe a time when?
- Explain your perception of
- If there is something more you'd like to add about _____ that I have not asked please describe that for me.

Additional questions for depth and breadth to the above questions:

- Would you expound on that?
- Tell me more.
- How would you describe that in a different way?
- I would like to hear more about that.
- Would you clarify that for me?
- What was the effect of that incident?
- What were the consequences?
- What was your reaction to that behavior?
- Take me through your thought processes during that time.

Appendix C

ERT Blueprint – Infrastructure Section

INFRASTRUCTURE	GUIDING QUESTIONS	School Leaders	Teachers	Students	Parents
Internet access	<ul style="list-style-type: none"> Where will each stakeholder access the internet? How many of each category require equipment? 				
Personal devices	<ul style="list-style-type: none"> What device will each stakeholder use to access the internet? Does the school/district have enough devices for all stakeholders? How many of each category require a personal device? How and when will devices be distributed? 				
Teaching devices	<ul style="list-style-type: none"> Do teachers need special equipment to implement ERT? (e.g. document cameras, extra monitors, touch screen w/stylus) 				
Technical support	<ul style="list-style-type: none"> What is the current level of proficiency among each category in the various programs used by the school/district? What types of tech support will be required for each category? (e.g. basic access issues, program-specific issues) Who is responsible for providing tech support to each category? Are there enough staff to provide tech support to all stakeholders? Where will additional tech support providers be acquired from if necessary? How do different stakeholder categories access tech support? 				
SIS	<ul style="list-style-type: none"> What program will be used at the school/district level to maintain student information? How will each category of stakeholders access/update their information on the SIS? How will the SIS be used with each category? 				
Mental health support	<ul style="list-style-type: none"> What kinds of mental health supports are available to each stakeholder category? Who is responsible for providing mental health support to each category? How will those supports be accessed by each category? Are there enough staff to provide mental health support to all stakeholders? Where will additional mental health support providers be acquired from if needed? 				

Appendix D

ERT Blueprint – Programs Section

PROGRAMS	GUIDING QUESTIONS	Grades K-2	Grades 3-5	Grades 6-8
Video conferencing	<ul style="list-style-type: none"> Do different grade levels require different video conferencing programs? How will the school/district use the video conferencing in each level? How/when will professional development be provided to teachers and parents at each grade level? 			
Classroom Management Software	<ul style="list-style-type: none"> Do teachers require special programs to enhance class management? (e.g. Dyknow, Kami, PearDeck) Do students require assistive technology to enable independent work (e.g. Read&Write, text-to-speech, speech-to-text) 			
LMS	<ul style="list-style-type: none"> Do different grade levels require different LMSs? How will the school/district use the LMS in each level? 			
Language Arts	<ul style="list-style-type: none"> What programs will be used for each subject? Are there digital components to existing print materials in each subject? Who will be the designated staff "expert" for each program and grade level? How/when will professional development be provided for each program and at each grade level? How/when will professional development be provided for online pedagogy specific to each subject and grade level? 			
Math				
Science				
Social Studies				
PE				
Art				
Social-Emotional				

Appendix E

ERT Blueprint – Programs Section

COMMUNICATION	GUIDING QUESTIONS	District-to-Schools	District-to-Homes	School-to-Staff	School-to-Homes	Teacher-to-Teacher	Teacher-to-Parent	Teacher-to-Student
Mode	<ul style="list-style-type: none"> • What programs will be used to communicate with each category? • Who is responsible for disseminating information in each category? 							
Frequency	<ul style="list-style-type: none"> • How often should communications be sent at each category? • How is frequency of messaging determined for each level? 							
Content	<ul style="list-style-type: none"> • What should communications contain at each category? • Who is responsible for developing communications content at each category? • What surveys need to be distributed to parents and teachers? 							

Appendix F

ERT Blueprint – Programs Section

ONLINE ONLY	GUIDING QUESTIONS	Grades K-2	Grades 3-5	Grades 6-8
	• Will the whole school follow the same schedule?			
	• Will each grade level follow the same schedule?			
	• Will individual teachers be allowed to set their own class schedules?			
	• How much whole-group time does each grade level need?			
	• How often do small groups need to meet for each subject?			
	• What work needs to be synchronous and what can be asynchronous?			
	• How will student engagement be measured?			
	• How many students require individual sessions?			
	• Is an aide required? Multiple aides?			
• Do teachers need office hours for students and/or parents?				
• When will teachers/teams collaborate?				
HYBRID	GUIDING QUESTIONS	Grades K-2	Grades 3-5	Grades 6-8
	• How many cohorts will students be split into?			
	• Will students be allowed to choose online-only OR hybrid?			
	• Can teachers choose online-only OR hybrid?			
	• Will cohorts attend in-person every-other day? Half-days?			
	Every-other week?			
	• How will student drop-off/pick-up be organized?			
	• Will each grade level follow the same schedule?			
	• Will individual teachers be allowed to set their own class schedules?			
	• What work needs to be synchronous and what can be asynchronous?			
• How will student engagement be measured?				
• How many students require individual sessions?				
• Is an aide required? Multiple aides?				
• Do teachers need office hours for students and/or parents?				
• When will teachers/teams collaborate?				
IN-PERSON	GUIDING QUESTIONS	Grades K-2	Grades 3-5	Grades 6-8
	• Will students be split into cohorts? If so, how many?			
	• Will cohorts meet every-other day? Half-days?			
	• Are additional facilities required to accommodate more classes with smaller class sizes?			
	• Will students meet on campus or at another location?			
	• How will student drop-off/pick-up be organized?			
• Will students/teachers be allowed to choose online instruction?				