THE INSTRUCTIONAL DECISIONS AND CONSIDERATIONS TEACHERS UTILIZED WITH THE INTEGRATION OF MULTIMODAL TEXTS DURING A GLOBAL PANDEMIC

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 $\mathbf{B}\mathbf{Y}$

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DEDICATION

For my children, Caroline, Gillian, Harrison, and Meredith. Thank you for your abundance of

patience, understanding, and love.

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I would like to give all the glory to our Heavenly Father because He has given me the strength and courage throughout this process. I also want to thank my four children: Caroline, Gillian, Harrison, and Meredith for always cheering me on through this process. There were many times I wanted to quit, but you lifted me up and encouraged me to stay the course. I also want to thank my parents, Mark and Anita Poteat, as well as Dennis, Tess, and Sarah Hilton for ALL of your support and love. It definitely takes a village when raising a family.

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ABSTRACT

AIMEE HILTON

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The COVID-19 global pandemic challenged the educational system in unprecedented ways. Teachers were tasked to shift modes of instruction and incorporate new multimodal curriculum with very little preparation time. Obstacles of incorporating technology into teaching were amplified by the lack of teacher preparation. Prior to the pandemic, research and theory clearly illustrated how multimodal texts support students as they employ the affordances to make meaning (Jewitt, 2008; Kress & van Leeuwen, 2001). Although many teachers were not adequately prepared, the pandemic provided a unique opportunity or case where teachers were required to use multimodal texts and multimodal digital texts despite the existing hurdles.

The purpose of this qualitative study was to describe the planning and teaching considerations teachers utilized as they integrated multimodal texts into their instruction during the pandemic. Three individual case studies of teachers resulted in a cross-case analysis. Through surveys, interviews, and observations, the data provided a narrative perspective of their instructional decisions, use of multimodal texts, and their affordances in classroom instruction. Four themes emerged such as professional development, multimodal knowledge, multimodal texts, and instructional considerations. When teachers receive the explicit professional development over the best practices of multimodal texts and their affordances, then their multimodal knowledge grows which will then change how the teachers make their instructional decisions and shift their instructional approaches. *Keywords:* multimodal texts, multimodal digital texts, global pandemic, instructional decisions, multimodal affordances

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CHAPTER I

INTRODUCTION

Literacy is complex and multidimensional. A literacy event is one that encompasses a myriad of components such as linguistic, cognitive, sociocultural, and developmental (Kucer, 2014). All of these components influence each other as a reader makes sense of print. In the 21st century, meaning is often conveyed in other ways beyond the printed text. Digital texts use multiple modes to convey meaning. Even though these digital texts are multimodal, these texts still encompass various dimensions.

All communications and representations are multimodal (Kress et al., 2001; Kress, 2002; Roswell et al., 2013). The term multimodality is the understanding that meaning is constructed through many types of communication and representations beyond language (Jewitt, 2008; Kress & van Leeuwen, 2001). Multimodality exists in all texts, but it is possible for one mode to dominate the text (Kress, 2002). Whether it is visual, verbal, auditory, tactile, spatial, or gestural, all modes convey meaning.

The evolution of technology and its use over the last few decades has clearly demonstrated how communication and representations are expressed in a variety of modes. No longer is print the only way to convey messages. Now online newspapers, magazines, and internet sites incorporate print, color, sound, images, and videos to disseminate information. But with these texts employing various modes, it is critical to note how these different modes provide different affordances and even constraints. The term mode refers to the varying perceptual modes that appeal to the senses (Siefkes, 2015). It is through these modes that affordances are "what is possible to express and represent easily" (Jewitt, 2008, p. 247). The affordances of the screen aid readers in any given reading experience. The affordances of the screen convey meaning through images, color, and even sound. When information and messages are communicated through multimodal texts, it requires new navigation skills and strategies of the reader (Serafini, 2012). It is this understanding that has recently challenged educators and their instructional decisions. With this ever-changing mode of communication, it is critical that educators adjust instruction in order to educate students, so the students can fully leverage the texts and the texts' affordances to make meaning.

Background

In addition to the continuous changes in how communication was conveyed, the world was shaken by a global pandemic known as the Coronavirus (World Health Organization, n.d.). With the virus outbreak in 2020, a shift occurred within the educational system. This new virus known as COVID-19 was found to be highly infectious and contagious (World Health Organization, n.d.). COVID-19, a respiratory virus, was transmitted from person to person either via respiratory droplets or airborne particles (Centers for Disease Control and Prevention, 2023). COVID-19 was also spread by touch as the virus lived on surfaces (Centers for Disease Control and Prevention, 2023). In order to reduce and control the spread of this virus, schools closed in March 2020 in order to comply with the Texas governor's stay-at-home orders (Exec. Order No. GA 08, 2020).

These new stay-at-home orders required school teachers to deliver instruction in unprecedented ways. With little to no preparation for this change in instruction (Hathaway et al., 2023) emergency remote teaching (ERT) was now the only avenue for school. This forced change of how to provide instruction remotely created tension for teachers. With my background as a reading specialist and my role as an instructional coach on two elementary campuses, I noticed that some teachers were able to make this transition somewhat easily as their computer

and technology skills and knowledge of online programs were advanced. Whereas many teachers felt unprepared to deliver online instruction. Instruction during this time was challenging and regarded as ERT as teachers struggled to switch modes of instructional delivery and engage their students (Hodges et al., 2020; Trust & Whalen, 2021). This new reality of teaching amidst a global pandemic, the instructional decisions and practices of teachers, and their employment of multimodality was more critical than ever.

With the start of the 2020-2021 school year, teachers faced additional challenges as they prepared for both in-person and at-home learners. Teachers were now required to provide instruction that incorporated the use of multimodal digital texts within the confines of the district curriculum. The demands for instructional and technological support increased dramatically. Teachers needed additional guidance when planning lessons as well as creating materials that were multimodal as well as interactive. This particular school district where the two elementary campuses resided did not require at-home learners to print any documents from their lessons, so teachers were tasked to use resources and materials where students could demonstrate their understanding both virtually and digitally.

With the shift from students primarily accessing information linguistically and being assessed in a monomodal manner to accessing information digitally and being assessed virtually, the instruction of how to navigate the multimodal digital texts was minimal, if not lacking (Jewitt, 2008). This lack of instruction could have potentially caused confusion or interruptions in students' comprehension (Serafini, 2012). It may have prevented students from fully utilizing the many affordances of multimodal texts (Antonenko et al., 2017).

As schools slowly returned to in-person learning the 2021-2022 school year, terms such as "learning loss" and the educational impacts of COVID-19 from school closures (Asadullah et

al., 2023; Texas Education Agency, n.d.) infiltrated the educational scene. With students back in the classroom, teachers were still challenged to teach while attempting to maintain social distancing within the classroom (U.S. Department of Education, n.d.). Even with the forced instructional shifts of incorporating multimodal texts and multimodal digital texts in their daily instruction due to the Coronavirus pandemic, many of the "traditional" instructional practices had not changed.

Barriers to Multimodal Literacy

The global pandemic was the catalyst that sparked and re-ignited conversations regarding the barriers and inequities of educational instructional access (Darmody et al., 2021; Haderlein et al., 2021; Walters, 2020). Educational inequalities have plagued school systems for over a century (Gamoran, 2001). Racial, political, economic, and social disparities have created inequities such as generational poverty, disparities in school funding, lack of teacher training, and limited access to resources (Schmelkes, 2020).

Technology Inequities

Understanding how multimodal instruction and literacy is critical for students to be productive in the 21st century (Jewitt, 2008; Lenters, 2018; Taylor & Leung, 2019), it is also pertinent to note the barriers schools faced implementing multimodal instruction. One of the biggest obstacles schools faced and continue to face are budget shortfalls (Allegretto et al., 2022; Lieberman, 2022). When schools did not receive federal or state funds to purchase devices or monies to purchase internet services for low-income families prior to the pandemic, then the digital divide expanded for low-income families (Lee, 2020; National Center for Education Statistics, 2021). This made ERT difficult for many low-income families since many relied on smartphones for internet access (Le, 2020; Vogels et al., 2020; Vogels, 2021). Additionally,

families who did not have access to strong, fast broadband signals, students had difficulties accessing video instruction and turning in work in a timely manner (Le, 2020; Vogels, 2021). Homes with multiple children also found it increasingly difficult to use the internet as internet service was weak and inconsistent (Le, 2020). Whether the barriers were school budgets, devices, hardware, software, broadband strengths, U.S. schools faced numerous barriers when schools closed in the spring of 2020 and slowly reopened over the next two school years.

Teacher Preparedness

Technology standards have been evolving for the last 20 years as technology itself has been advancing (Snelling, 2016). The International Society for Technology in Education (ISTE) established a set of standards for students, educators, education leaders, and coaches to "provide the competencies for learning, teaching and leading with technology, and are a comprehensive road map for the effective use of technology in schools worldwide" (n.d., p. 1). Additionally, the Texas Education Agency adopted technology standards in 2011 and implemented them as part of the Texas Essential Knowledge and Skills beginning the 2012-2013 school years (Texas Education Agency, n.d.). Even with the adoption of these standards, the incorporation of technology into instruction has been a slow progression into the mainstream classroom (Baran et al., 2011; Hathaway et al., 2023).

This slow infusion of the implementation of the technology standards into mainstream classrooms was also due to low teacher self-efficacy and lack of appropriate training (Joo et al., 2018; Mishra & Koehler, 2006). Foulger et al. (2017) discovered that beginning teachers felt "ill-prepared to use technology effectively when they enter the classrooms" (p. 417). Several studies found that teacher preparation programs were still refining their technology curriculum for preservice teachers to help prepare teachers for the classroom but have encountered challenges

when finding teacher mentors that utilize technology effectively in their own instruction (Gronseth et al., 2010; Uerz et al., 2018). Even with the adoption of the technology standards and teacher preparation programs acknowledging the need to include technology curriculum in the years prior to the COVID epidemic, the rate of instructional change was not eminent enough to fully prepare teachers for the level of technology readiness that promoted high levels of teacher self-efficacy which was vital for effective emergency remote teaching.

Interpretive Framework

The theoretical perspectives were situated with the research lens around instructional decisions, multimodal texts, and multimodal affordances (Jewitt, 2008; Kress et al., 2001, 2009). This study embraced a social constructivism interpretive framework (Creswell & Poth, 2018) where the case studies focused on gaining an understanding of teachers' instructional decisions, how teachers used multimodal texts, and their affordances during a global pandemic. This bounded event was unique as the elementary schools have never encountered a global pandemic which in turn impacted the instructional delivery, as well as the types of resources students interacted with as they learn (Yin, 2018). This bounded event sparked conflict with educators as they were compelled to change their operational and instructional systems in a short amount of time. Using a social constructivist framework, I gathered insight into the participants' experiences with multimodal texts, their decision-making practices, as well as their views of teaching during and following a global pandemic.

Research Problem, Purpose, and Research Questions

The COVID-19 global pandemic challenged teachers to shift modes of instruction and incorporate new multimodal curriculum. Obstacles of incorporating technology into teaching (Le, 2020; Vogels, 2021) were amplified by lack of teacher preparation (Joo et al., 2018; Mishra

& Koehler, 2006). Prior to the pandemic, research and theory clearly illustrated how multimodal texts support students as they employ the affordances and constraints to make meaning (Jewitt, 2008; Kress & van Leeuwen, 2001). Although many teachers were not adequately prepared, the pandemic provided a unique opportunity or case where teachers were required to use multimodal texts and multimodal digital texts despite the existing hurdles.

Therefore, the purpose of this study was to describe the planning and teaching considerations teachers utilized as they integrated multimodal texts into their instruction during a pandemic. Three individual case studies of teachers resulted in a cross-case analysis. These three case studies of teachers and their instructional decisions were described across various content areas and grade level classrooms. Through surveys, interviews, and observations, the data provided a narrative perspective of teachers' instructional decisions, use of multimodal texts, and their affordances in classroom instruction.

The research questions guiding this study are as follows:

- 1. How do teachers employ multimodal affordances with instruction during a pandemic?
- 2. What are the teachers' considerations when making instructional decisions regarding multimodal texts and multimodal digital texts?
- 3. How do teachers provide instruction of multimodal and multimodal digital texts to students?

Significance

The study contributes to the knowledge base of teaching practices related to technology, specifically multimodal texts. Through a qualitative cross-case analysis, the detail of the considerations and decisions teachers made are reported in detail. Thus, the cases provide a

unique and copious perspective of how teachers navigate curriculum, instruction, and technology. Understanding these cases provide valuable information to researchers, leaders, and teachers. Noticing how each case planned to employ multimodal texts and their affordances into their instruction prompts future curriculum writers on how to improve the incorporation of multimodal texts into curriculum. Examining the processes teachers use when selecting and utilizing multimodal texts for instruction provide insight to teacher leaders as they continue to support and develop future professional development. Furthermore, this study is meaningful because it adds to what researchers understand about how teachers support children as they navigate multimodal texts. Gaining additional insight to this process of how teachers make these instructional decisions as well as how teachers instruct students to fully employ the affordances of multimodal texts in order to make meaning, these insights add to the growing body of multimodal literacy research. Finally, the study is unique because it captures teachers unparalleled experiences during a distinctive and unprecedented time period in education.

Summary

Literacy is complex and multidimensional. With the global pandemic, forced school closures, and continued COVID safety protocols, teachers were expected to change their instruction with little to no preparation. This cross-case research study investigates the instructional decisions teachers make and how they use multimodal texts and their affordances during a global pandemic. The findings will provide insight on how teacher leaders can support future teachers through professional learning. Finally, this study will support teachers as they help students navigate texts to make meaning.

CHAPTER II

LITERATURE REVIEW

With qualitative research, it is critical to examine the existing body of research regarding the topic of inquiry. Merriam and Tisdell state that a literature review is a "narrative essay that integrates, synthesizes, and critiques the important thinking and research on a particular topic" (2016, p. 95). Gleaning important information from previous research allows researchers to become familiar with current research and be able to "situate their study in the knowledge base of the field" (Merriam & Tisdell, 2016, p. 95). For this research study, it was integral to review the existing body of literature over the topics of multimodal literacy, teacher efficacy and technology implementation, emergency remote teaching and the pandemic, and multimodal texts and teacher decisions.

Multimodal Literacy

Multimodal literacy is framed from two complementary approaches to reading. One approach is the new literacy studies framework (Gee, 2015) where the focus was to evaluate oral and written language, social influences, and issues of power. Another approach is the social semiotic approach to multimodality which focuses less on oral and written language but more on the reading and writing processes. Even though these approaches have a different foci, both of these frameworks studied the physical aspects of texts as well as how communication and meaning is derived from a social framework (Gee, 2015; Roswell et al., 2013).

To begin an understanding of multimodal literacy, it is important to look at both of these approaches. Looking at the new literacy studies framework (Gee, 2015), which focuses on the oral and written language and social influences, one key study demonstrated how language shifts across cultures. Heath's (1983) study analyzed how literacy practices, both home and school,

changed across cultures. In her study, she studied three groups of young children. Two groups were from rural communities. Both communities were from hard working families. The difference between these two groups was in the cultural make-up. One community was African American (Trackton) and the other was white (Roadville). Both of these communities were compared to an urban white community (Maintown) which was mainly comprised of educator's children. Heath discovered that even though all communities valued home and school literacies, the approach varied. The African American children (Trackton) were taught literacy and language whereas the white children (Roadville) were taught literacy through the use of language. Likewise in comparison, the white children in the urban communities were taught literacy through the lens of school-based literacies. In all of these cases, it was evident how language and literacy practices shifted across communities (Heath, 1983).

In addition to the new literacies approach to multimodal literacy, it is imperative to understand the social semiotic approach (Kress, 2002, 2009; Kress et al., 2001; Kress & van Leuwen, 2001). The social semiotic approach is the study of the resources of communication such as visual, auditory, tactile, gestural, and spatial, along with the social, cultural, and historical constructs (Kress, 2013). All of these components together create meaning. For example, the symbol of the Red Cross is known to many as a sign of refuge or safety. This understanding of the symbol of the cross is rooted in Christianity. Depending on an individual's social or cultural background, one may not recognize this symbol as a place of refuge. The meaning of the symbol was different across different social and cultural groups.

Connecting the social semiotic approach to multimodality, it is important to consider the history behind multimodal literacy. Prior to the technological explosion of the twentieth century, most Westernized countries privileged the use of print in texts (Kress et al., 2001). These types

of texts were mostly written by one author and had strict framing structures. The text flowed top to bottom, left to right, and was composed of written words. But as the use of technology exploded across the globe, the structure and use of texts has changed dramatically (Kress et al., 2001; Kress, 2002). Now texts are composed of various modes. Modes that include both written and spoken language, but also other patterns of meaning such as visual, auditory, tactile, spatial, and gestural (Kress, 2002). All of these modes contribute to meaning. Print texts are no longer the only type of texts. Communication is now shared across different mediums and modes, and not just print alone (Figure 2.1). With these new forms of communication, it is paramount that readers change how they read and approach texts. With multimodal texts, reading is now across the screen. One must analyze both the text and the image to create meaning (Kress et al., 2001).

In comparison to print texts, multimodal texts are many times authored by more than one author. They are no longer linear, the framing is less rigid, and they offer affordances. The affordances of the screen aids readers in any given reading experience. For example, the use of visuals and sounds on a screen creates the potential for readers to hear and see the signs and symbols. Along with the reader's social and cultural experiences in combination with the affordances and constraints of the screen, meaning is created (Kress et al., 2001; Kress, 2002; Kress; 2013).

As the use of technology is universal and types of texts are constantly changing, Kress stated that all texts are essentially multimodal. All texts are comprised of at least two different modes. One of the modes might be more dominant than the other, but essentially all communications and representations are multimodal (Kress et al., 2001; Kress, 2002; Kress, 2013).

Figure 2.1

Multimodal Literacy Illustration Created by the Author



Teacher Self-Efficacy and Technology Implementation

Teacher self-efficacy has been studied in education over the last 30 years and has been "consistently related to teacher behaviors and student outcomes" (Bray-Clark & Bates, 2003, p. 13). Albert Bandura, a social cognitive theorist, stated "perceived self-efficacy refers to beliefs in one's capabilities to organize and execute the courses of action required to manage prospective situations. Self-efficacy beliefs influence how people think, feel, motivate themselves, and act" (Bandura, 1995, p. 2). Individuals develop self-efficacy through mastery experiences, vicarious experiences, social persuasion, and physiological perceptions and interpretations (Bandura, 1995). Therefore, when teachers experience high levels of success, they are more likely to have high self-efficacy beliefs.

In Buric and Kim's 2019 study, they investigated the relationships between teacher selfefficacy, instructional quality, and student motivational beliefs. In their findings, they discovered a positive correlation between teacher self-efficacy, instructional quality, and student motivational beliefs (Buric & Kim, 2019). Teachers with high levels of self-efficacy exhibited effective classroom management techniques, demonstrated lower levels of stress, and displayed higher levels of confidence in their instructional capabilities (Buric & Kim, 2019). This study confirmed Bandura's theory about self-efficacy, and how it influences the thoughts, feelings, and actions of individuals (1995).

Prior to the pandemic, the conversation of teacher self-efficacy and the implementation of technology into instruction was prevalent. With the slow progression and expectation of the technology standards being implemented into the everyday instruction, K-12 teachers received technology training that was primarily focused on how to teach with technology (Baran et al., 2011; Foulger et al., 2017). The focus was not on how to develop an online course or how to

support learning in an online platform since online learning and blended learning was traditionally seen in higher education or adult learning contexts (Baran et al., 2011; Foulger et al., 2017; Gronseth et al., 2010; Hathaway et al., 2023). With some examples of online teaching, it was found that teachers were trying to use some of the same instructional face to face strategies when teaching online which proved to be ineffective (Baran et al., 2011). Strategies such as teacher-led instruction and favoring print-based texts did not foster learning environments that supported learner creativity, independence, and autonomy (Baran et al., 2011; Kreber & Kanuka, 2006; Richardson & Alsup, 2015). Therefore, when these strategies were utilized in an online platform, tensions were created and the self-efficacy of the teacher was diminished (Baran et al., 2011; Natriello, 2005).

An example of this direct correlation between teacher self-efficacy and technology implementation can be found in Anderson, Groulx, and Maninger's (2011) study. In this study, 217 preservice teachers were surveyed to investigate how their self-efficacy and value beliefs influenced their intentions to use technology within the classroom. The survey inquired and asked the teachers to rank their abilities on how to use various technology applications such as word processing, spreadsheets, databases, presentation software and internet usage. Likewise, they were asked to complete a 5-point Likert Scale rating over questions such as self-efficacy, value beliefs, constructivist beliefs, intentions variety, and intentions frequency. The findings from this study indicated that value beliefs and self-efficacy were strongly and moderately correlated to teacher use of technology in the classroom (Anderson et al., 2011).

Research of teacher self-efficacy, technology implementation, and its correlation was still evident throughout the pandemic. In Ogodo, Simon, Morris, and Akubo's (2021) study, they surveyed over 100 K-12 teachers across 12 states in the United States and inquired into their

experiences, digital competencies, and instructional self-efficacy. In their findings, approximately 64% of teachers reported high self-efficacy, which reflected the teachers' preexisting knowledge of digital devices, basic tools, resources and a learning management system prior to the pandemic. These teachers worked in a district that already had some of these systems and resources in place before the schools were forced to close. Conversely, approximately 36% of teachers reported low self-efficacy as they indicated they learned most of the resources and learning management systems on their own during the pandemic. It was interesting to note that in the case of the teachers who reported low self-efficacy, it was a combination of veteran teachers as well as teachers that were within the first 5 years of their teaching career. Therefore, their findings indicated that the teachers who had high levels of self-efficacy also demonstrated high levels of digital competencies (Ogodo et al., 2021).

Emergency Remote Teaching and the Pandemic

Even prior to the pandemic, technology was advancing and evolving faster than teacher preparation programs could adapt their technology curriculum (Gronseth et al., 2010). So, when the global pandemic forced the shut down of schools across the nation in the spring of 2020 (Decker et al., 2020), teachers had not received adequate professional development that focused on online teaching or the development of the skills necessary for creating technology-based lesson plans (Baran et al., 2011; Foulger et al., 2017; Hathaway et al., 2023). K-12 educators did not feel prepared to transition to ERT since it was not the "traditional" way of instruction (Hathaway et al., 2023; Hodges et al., 2020; Trust & Whalen, 2021). ERT is a "temporary shift of instructional delivery to an alternate delivery mode due to crisis circumstances" (Hodges et al., 2020, p. 7). Educators were not afforded the opportunity to develop the skill set on how to

best deliver effective online instruction due to the immediate school closures (Reynolds et al., 2022; Exec. Order No. GA 08, 2020).

In a 2023 study, researchers surveyed over 800 K-12 teachers from Norway and the United States and inquired into their levels of preparedness and digital competencies as they transitioned into emergency remote teaching (Hathaway et al., 2023). In their findings, they discovered that only 11% of Norwegian teachers felt very well prepared and only 2% of United States teachers felt very well prepared. To better understand the contexts of what very well prepared meant, teachers indicated they had "access to digital technologies, routine use of technology-based strategies in the classroom and/or across the school prior to the pandemic, creativity, and graduate degrees that focused on integration of technology in schools" (Hathaway et al., 2023, p. 12). In the next category, 48% of Norwegian teachers and 50% of United States teachers felt prepared going into emergency remote teaching, and it was mainly in response to their districts support with emergency professional trainings to help the teachers prepare for the emergency closures (Hathaway et al., 2023). In regard to the number of teachers that felt unprepared, Norway reported 36% and the United States reported 46% (Hathaway et al., 2023). It is important to note that the researchers noted that several of the unprepared teachers stated they began to feel more prepared as time went on and as they continued to participate in additional trainings (Hathaway et al., 2023). Needless to say, when the global crisis swept across the world, educators were forced to adapt to new ways of instruction in which most teachers were not fully prepared.

Similar concerns of teacher preparedness during emergency remote teaching were also a finding in Trust and Whalen's (2020) study. It surveyed over 325 K-12 teachers and discovered that 68% of the teachers had never tried remote teaching prior to the pandemic. Likewise, 66%

had never tried online teaching and 55% had never tried blended learning (Trust & Whalen, 2020). In this study, teachers were found to be "overwhelmed and unprepared to use online or remote teaching strategies and tools and they struggled to adapt their pedagogy to fluctuating situations, such as students' unreliable Internet access, changing personal needs, and unclear or shifting educational or governmental directives" (Trust & Whalen, 2020, p. 191). Trust and Whalen indicated that most of the teachers needed support shifting their pedagogy and most of their learning was self-taught (Trust & Whalen, 2020).

In Trust and Whalen's (2021b) study, they discovered additional challenges that teachers faced during emergency remote teaching during the pandemic. The most common concern was the overwhelming frustration of teachers having to filter through the extensive list of free and new digital resources that were made available during that time (Trust & Whalen, 2021b). Teachers found it difficult and increasingly time consuming to sort and sift trying to find the best online resource that fit the needs of their lesson as well as their students. Teachers did not have the online technical support to help them navigate the new resources (Trust & Whalen, 2021b). Most of the new learning was self-taught and completed by watching YouTube videos or webinars (Trust & Whalen, 2021b). This in turn added to the extensive amount of time teachers were spending trying to plan engaging and interactive lessons which added to teacher stress and burnout.

Another challenge that was difficult during emergency remote teaching was technology access for both teachers and students (Trust & Whalen, 2021b; Hathaway et al., 2023). Access to computers and broadband internet services for some teachers and students was problematic (Trust & Whalen, 2021b; Hathaway et al., 2023). Trust and Whalen discovered that most of the population of students that received "free or reduced lunch did not have access to devices or the

Internet. Even with a plan to distribute devices to the families, if the families were not able to get access to the Internet, then the device did you no good" (2021b, p. 16). With the difficulties of teachers and students having inconsistent access to technology and internet access, these two challenges perpetuated high levels of stress for teachers and low levels of self-efficacy as teachers embraced emergency remote teaching.

Beyond a teacher's instructional technology abilities, one other area of concern during emergency remote teaching during the pandemic was a teacher's ability to troubleshoot technology issues. Trust and Whalen (2021b) reported in their study, teachers had difficulty troubleshooting general technical issues as well as complaints of too much screen time. Due to teaching remotely, teachers had difficulty trying to troubleshoot when computer or internet issues arose. Additionally, due to the long hours on screen, many teachers exhibited screen time fatigue and even migraines. Trust and Whalen contributed the long amounts of screen time due to teachers attempting to replicate face to face teaching strategies online such as direct instruction (2021b). Trust and Whalen also indicated that the long screen was also contributed to the excess of time teachers were spending researching and trying out new resources and digital tools (2021b).

Multimodal Texts and Teacher Decisions

With the evolution of technology and implementation of technology standards into district curriculums, multimodal texts, and multiliteracy pedagogy are becoming increasingly a standard in literacy instruction (Roswell & Walsh, 2011). But teachers face challenges on how to best teach students how to navigate, interact, and engage with multimodal texts (Cassidy et al., 2021). Even though "digital/multimodal literacies remain particularly hot, they often remain implemented in piecemeal ways" (Cassidy et al., 2021, p. 7). Yap and Gurney (2023) argued

that "literacy teaching and learning practices need to develop the necessary multiliteracy skills that enable learners to participate as productive and capable members of society" (p. 292). It is no longer simply teaching students how to use technology but how to filter, deconstruct, critique, and be able to fully utilize the affordances of texts in order to make meaning (Cazden et al., 1996; Yap & Gurney, 2023).

In Yap and Gurney's study (2023), their findings suggest that multiliteracy pedagogy supplements traditional literacy pedagogy. As part of their narrative inquiry, students were able to engage in new literacy practices across multimodal digital texts. They were able to incorporate their own experiences and interests into their literacy practices. Students were "engaged as active agents and meaning-makers, immersed in authentic literary activities that used their prior knowledge while developing new knowledge" (Yap & Gurney, 2023, p. 301). They were able to search for information online, be critical thinkers about the information, and discuss and challenge each other's points of view. Additionally, Yap and Gurney add that it was imperative to be explicit when teaching multiliteracies as "issues of economic inequality, social injustice, and cultural marginalization persist" (2023, p. 301). For example, a website may have multiple modes such as written text, audio, video, images, etc. all of which convey meaning through the different modes and affordances (Kress et al., 2001; Kress, 2002; Kress, 2013). It is necessary for educators to explicitly teach how to question texts when students navigate and engage with them.

In Hashemi's (2017) study, she investigated the socio-semiotic patterns and meaning making choices of elementary students. This study was situated with 12-, 7-, and 8-year-old students as they developed a digital composition. Teachers provided "explicit modeling to digital and multimodal text composition" prior to the digital composition assignment (Hashemi,

2017, p. 435). Students could then choose the media, modes and semiotic resources they wanted to use to develop their digital stories (Hashemi, 2017). From the findings from this study, Hashemi discovered the twelve students used a variety of semiotic resources (2017). Writing and images were the preferred forms of visual design, but there were a variety of forms of texts produced such as "documents, presentations, e-books, and films" (Hashemi, 2017, p. 444). This study demonstrated that students utilize and engage in a variety of literacy experiences as they navigate technology and engage in meaning making activities. Furthermore, when students experience explicit instruction and have "prior in-class experiences with digital text composing of how to write and present facts," students are able to negotiate new texts successfully (Hashemi, 2017, p. 445).

Finally, Nash et al. (2023) conducted a study that inquired into the multimodal literacy practices through a lens of culturally sustaining practices. In this case study, Nash et al. (2023) investigated the interactions between a preservice teacher and a student that recently moved to Texas from Mexico. Early in the study, the pre-service teacher noticed the student's interest in creating things from various materials. As the teacher continued her work throughout the semester, she continued to develop a range of multimodal activities that were built upon the student's fund of knowledge (Nash et al., 2023). The pre-service teacher used this strength and interest as a way to "engage the student in reading and writing for meaning making" (Nash et al., 2023). She incorporated literacies other than the "essay-text forms that are so dominant in western curricular traditions" (Nash et al., 2023, p. 18). From the findings of this case study, Nash et al. determined that the preservice teacher was able to use multimodal literacy in response to the student's interests, culture, and languages and by doing so, the instruction was culturally sustaining (2023).

Summary

This review of research described multimodal literacy, teacher efficacy and technology implementation, emergency remote teaching and the pandemic, and multimodal texts and teacher decisions. The literature review featured a blend of studies before, during, and after the pandemic. Understanding the pandemic was an unprecedented time for education, it is important to note that researchers will continue to learn and grow in the understanding of the events and research various topics of inquiry during this time in history. In the case of this research study, it is just one piece of the growing body of knowledge regarding the planning and teaching considerations teachers utilized as they integrated multimodal texts into their instruction during a global pandemic.

CHAPTER III

METHODOLOGY

In any given qualitative research study, understanding the researcher's philosophical assumptions are necessary in order to make sense of how the researcher approaches a problem, and analyzes and interprets data (Creswell & Poth, 2018). Additionally, a researcher must understand his or her own underlying belief systems because they will view their world, or in the case of research, their research study, through a specific interpretive framework or paradigm lens. In the instance of this case study, the researcher's research design, data sources, data management strategies, data analysis, and trustworthiness are explained in detail.

Research Design

Paradigm

When a researcher approaches a social research study, he or she has pre-established viewpoints about reality and how reality is created (Creswell & Poth, 2018; Crotty, 2015). These assumptions then are the "basic set of beliefs that guides action" (Guba, 1990, p. 17). In this study, the research paradigm that was the foundation of this study was constructionism. Constructionism is the "view that all knowledge, and therefore all meaningful reality as such, is contingent upon human practices, being constructed in and out of interaction between human beings and their world and developed and transmitted within an essentially social context" (Crotty, 2015, p. 42). Knowledge, therefore, is constructed as human beings interact and engage with the world around them. Humans learn through interactions with others and through lived experiences. With the constructionism research paradigm, it is also important to note that a person's culture plays an integral role as humans make sense of the world around them (Crotty, 2015).

With constructionism viewing knowledge of the world as being constructed through human interaction, it is easy to confuse this term with constructivism. Crotty differentiates these two terms by stating that constructivism focuses exclusively on the "meaning making activity of the individual mind" and constructionism includes the "collective generation [and transmission] of meaning" (2015, p. 58). For the purposes of this research study, constructionism is the paradigm in which the study is situated.

Positionality

The relationship between the researcher and the observed is essential to recognize in order to discern the dynamics and how closely the entities interacted throughout the study. In this research study, the researcher's positionality was observer as participant (Merriam & Tisdell, 2016). With this positionality, the researcher was known to the group but did not actively participate in the activities of the group (Creswell & Poth, 2018; Merriam & Tisdell, 2016). As the study progressed over several weeks, there were times the positionality ebbed and flowed from observer as participant to participant as observer where the researcher was able to become involved in some of the classroom activities. This undulation between the two positionality stances is not uncommon (Creswell & Poth, 2018; Merriam & Tisdell, 2016). But as Patton (2015) noted, "the challenge is to combine participation and observation so as to become capable of understanding the setting as an insider while describing it to and for outsiders" (p. 338).

Methodology

Just as a researcher must identify his or her own research paradigm and positionality, the methodology of the study is just as important as it connects and reflects the two stances. A research methodology is simply the "procedures used in the study" (Creswell & Poth, 2018, p.

18). In this specific research, the methodology employed are descriptive, collective case studies (Creswell & Poth, 2018).

The purpose of this study was to inquire into the instructional decisions teachers make as they utilize multimodal texts. Additionally, this study described how the multimodal affordances were utilized by students. This research study consisted of three individual case studies that were within a bounded system (Creswell & Poth, 2018; Merriam & Tisdell, 2016; Yin, 2018). Descriptive, collective case studies were selected as the methodology because the inquiry investigated the cases or bounded systems over a specific period of time, or more specifically during the global pandemic (Creswell & Poth, 2018; Zainal, 2007). For the duration of this study, data was systematically analyzed at each step of the process through surveys, interviews, and observations. Analyzing the data informed the ways in which further data was collected and analyzed.

Research Context

The research study was conducted in a mid-size school district in North Texas which is located in the southern region of the United States. The school district has 21,420 students enrolled and has 24 campuses (as of 2021). There are 18 elementary campuses, three middle school campuses, one freshman center campus, one high school and one alternative academic center.

I selected this district as I have been an employee of the district for more than 15 years. I have worked in various roles at several of the elementary campuses over the years and during this research study, I had just served as an instructional coach on two of the elementary campuses.

In an attempt to get a purposeful sampling of participants (Patton, 2015), I surveyed teachers across the 18 suburban Kindergarten - sixth grade elementary campuses. I sent an email with a linked interest Google Form to 394 teachers across these 18 elementary campuses via the public email addresses found on each elementary school's website to search for interested participants. Potential participants had 5 calendar days to respond to the email via the interest Google form to indicate their interest in the research study. Of the 394 emails, 14 participants responded indicating they were interested in the research study.

I then sent an email to the 14 participants' public email address with a link to a consent form and a volunteer survey Google form that inquired about the comfort levels teachers had in regard to online instruction, the use of multimodal texts, and their perception of their instructional efficacy. Gaining an understanding of teachers' perception of their instructional efficacy, it was this perception that directly influenced their instructional decisions. From these results, the teachers were categorized into three groups according to both the comfort levels and instructional efficacy: low, neutral, and high. Participants had 5 calendar days to complete the Google Form survey.

After the 5 days, I selected three teachers according to the results of the survey: low comfort-low efficacy, low comfort-high efficacy, neutral comfort-low efficacy, neutral comfort-high efficacy. The three teachers were selected according to the varying level of comfort and efficacy levels with the goal of having one teacher representative per comfort and efficacy level. The three teachers selected according to comfort and efficacy level resulted in three individual case studies, followed by a cross-case analysis. I individually sent an email to the physical email address of the three teachers to inform them that they were selected to continue the research process.
The three teachers selected coincidentally taught at one of the elementary campuses in the district. I had established relationships with the students and staff at this one elementary school since I had just completed my work as an instructional coach. This elementary school was unique as the Gifted and Talented Academy was housed within the neighborhood school. It followed a school within the school model (Dewees, 1999). This model blended together a gifted and talented academy where students receive all day instruction with like-minded peers. Students around the district were selected to attend the Gifted and Talented Academy by a lottery system. However, if a student in the neighborhood qualified as gifted and talented, then the student was automatically enrolled as a student in the Gifted and Talented Academy. With this process, the neighborhood general education classes did not have any gifted and talented students in the classrooms since these students were automatically enrolled in the Gifted and Talented Academy. The three case studies selected from this campus were from the neighborhood classrooms of the school. One case study was in a Kindergarten classroom, the second case study was in a first-grade classroom and the third case study was in a fourth-grade classroom.

Given I was an instructional coach for the teachers, I had insider knowledge related to their pre-pandemic and pandemic teaching. Prior to the pandemic, the district was not a 1:1 district where every student had a school issued technology device. Each grade level which embodied three to four sections shared one computer cart that contained 30 Chromebooks. During this time, teachers rarely or did not use digital tools in the classroom as the resources were shared and difficult to use on a regular basis.

During the pandemic, teachers were forced to engage in emergency remote teaching, and it challenged teachers to shift modes of instruction and incorporate new multimodal curriculum. K-second grade teachers utilized Seesaw as a learning management platform to post assignments

and communicate with parents. Likewise, third-sixth grade teachers utilized Google Classroom as a learning management platform for assignments and communication. K-sixth grade teachers heavily leaned on the online website Epic for access to books. Teachers used this website so students could read texts while at home. Teachers praised this website as it offered a wide variety of texts as well as a large number of texts with aural affordances.

Even after schools reopened during the pandemic, the teachers continued to employ some of the tools they used during emergency remote teaching. For example, teachers continued to use Epic as a resource for multimodal digital texts. Teachers mainly utilized digital tools such as the read aloud button to support various learners in the classroom. Clearly the forced online teaching shifted the tools the teachers utilized in their face-to-face instruction during the pandemic.

The teacher in the Kindergarten classroom was a novice teacher with 0-5 years experience. She had 21 students in her classroom. Twelve of the students were boys and nine of the students were girls. The student desks were arranged by rows. There were three rows of five students that were arranged with boys and girls. The front row closest to the Smartboard had three desks in a row where one boy and two girls were seated. Then off to the side there were three individual desks where three boys were sitting. Due to COVID concerns, one family requested that their child's desk be separated from the other classmates' desks. The other two students that were separated were due to other concerns.

The first grade teacher was a mid-career teacher with 6 to 15 years of teaching experience. She had 22 students in her classroom. Twelve of her students were boys and 10 of her students were girls. The desks were arranged in rows by pairs. There were three columns of

paired desks. There was one pair of desks at the back of the room that was empty. The teacher occasionally moved students to these desks for additional workspace.

The fourth grade teacher was a veteran teacher with more than 20 years of teaching fourth grade. She had 22 students in her classroom. Thirteen of her students were boys and nine were girls. The desks in this classroom were individually arranged. Even though the students were sitting apart from each other, the teacher still provided opportunities for the students to collaborate with their peers.

Data Sources

There were numerous considerations when collecting data during a qualitative research study. Creswell and Poth (2018) created a circle of interrelated activities that a researcher recursively works through during research. Activities such as gaining access and developing rapport, collecting data, recording information, and securely storing data were some of the critical components during data collection. All of these activities were executed concurrently as the researcher upheld ethical considerations (Creswell & Poth, 2018).

For this research study, several types of data sources were collected. Surveys, participant interviews, and classroom observations were collected in order to gain an understanding of teachers' instructional decisions, how teachers used multimodal texts, and their affordances during a global pandemic.

Audio Recordings

Audio recordings of the study ensured that the information gathered was correctly transcribed and interpreted. It accurately captured the tone, inflection, and message of both the researcher and participant which reduced possible bias and misinterpretation. The audio recording was recorded on an individual digital voice recorder. Audio was captured on an

attached USB flash drive which was transferred to the researcher's computer which was passcode protected for storage during the research process. Audio recordings were taken during each case study interview as well as during the classroom observations.

Surveys

The survey for this research study was adapted from James Gentry's Educator Technology Self-Efficacy Survey (ETS-ES; Gentry, 2021). The survey was digitally emailed to 14 interested participants. The Google Form inquired into the comfort levels teachers had in regard to online instruction, the use of multimodal texts, and their perception of their technology instructional efficacy (Figure 3.1) From these results, the teachers were categorized into three groups according to both the comfort levels and instructional efficacy: low, neutral, and high.

Figure 3.1

Excerpt From the Instructional Technology Comfort Levels and Self-Efficacy Survey

I know how to develop technology-enriched learning activities for active learning. *
C Low Comfort/Disagree
Neutral
High Comfort/Agree
I know how to promote students' reflections using online collaborative tools. *
C Low Comfort/Disagree
Neutral
High Comfort/Agree
I encourage my students to use digital tools and texts that are unfamiliar to me. *
C Low Comfort/Disagree
Neutral

High Comfort/Agree

						<i>a</i>				
l consistently	<i>i</i> teach	students	how to	LICO DOW	and	unfamiliar	dinital	tools and	toyte	×
Consistenti	y icacii	Students	1000 10	use new	ana	umannia	ulgitui	tools and	ichio.	

Low Efficacy/Disgree

- Medium Efficacy/Neutral
- High Efficacy/Agree

My technology skills permit my ability to acquire and keep pace with new digital tools and texts.

Low Efficacy/Disagree

Medium Efficacy/Neutral

High Efficacy/Agree

I value the use of digital tools and texts to support research, teaching, and learning. *

Low Efficacy/Disagree

- Medium Efficacy/Neutral
- High Efficacy/Agree

Below is an excerpt from the data collected from the surveys. The answers were coded according to the different levels of comfort: high comfort/agree, neutral, and low comfort/disagree (Table 3.1).

Table 3.1

Excerpt From the Data Collected From the Surveys

Case Study	Survey Question 1	Survey Question 2	Survey Question 3	Survey Question 4	Survey Question 5
Responses	I know how to use	I know how to	I know how to	I encourage my	I know how to set up
	online tools such as	develop technology-	promote students'	students to use digital	an online classroom
	Google Meets and	enriched learning	reflections using	tools and texts that	where students can
	Zoom effectively.	activities for active	online collaborative	are unfamiliar to me.	express themselves
		learning.	tools.		digitally.
Case A	High Comfort/Agree	High Comfort/Agree	High Comfort/Agree	Low	High Comfort/Agree
				Comfort/Disagree	
Case B	Neutral	High Comfort/Agree	High Comfort/Agree	Low	High Comfort/Agree
				Comfort/Disagree	
Case C	High Comfort/Agree	Neutral	Neutral	Neutral	High Comfort/Agree

I later used this information and compared their survey responses to their answers in the interview and then the actions in the classroom observations.

Classroom Observations

To gain an understanding into the teachers' instructional practices, the use of multimodal texts, student engagement, and the employment of affordances to construct meaning, I observed each case study four different times. I individually sent an email to the physical email addresses of the three teachers to schedule a time to come and observe their classrooms. The four observations occurred across a six-week time period. Observations occurred mainly during English Language Arts instruction, but there were times the observations occurred during instruction of other content areas.

During the observations, descriptive field notes (Merriam & Tisdell, 2016) were taken noting teacher and student actions and interactions, activities, materials, and resources utilized throughout the instruction (Table 3.2). The observations were audio recorded on a digital voice recorder. Photographs were taken to capture the images throughout the room as well as the multimodal texts and the affordances students were utilizing. A reflexive journal was used to journal my reflections and questions following the observations.

Table 3.2

Observation	Comments
10:10 Reading Instruction	Students are sitting in rows on the carpet in
	front of the Smartboard. Teacher is sitting at
Teacher is finishing a read aloud from the	the media computer. She displays the book
book, Spaghetti in a Hot Dog Bun.	under the document camera and points to the
	words as she reads. When she reads from the
At the end of the story, the teacher reminded	book, she turns her body toward the front of
the students that they have been working on	the room, so she could read and point to the

Excerpt From a Classroom Observation

retelling stories. The teacher asks the students	words. She turns and faces the students when
to raise their hands if they could retell the	she is talking with the students.
story from the read aloud. Many students	
raise their hands.	To help the students remember how to retell, she gives them the sentence stems of "In the
The teacher called on one student who had	beginning" "Then," and "Finally."
their hand raised. The student was able to	
retell the story well.	The student must have retold the story well as the teacher praised the student for the excellent retelling.

Interviews

Interviews are often an integral part of a qualitative research study. Merriam and Tisdell stated, "Interviewing is necessary when we cannot observe behavior, feelings, or how people interpret the world around them. It is also necessary to interview when we are interested in past events that are impossible to replicate" (2016, p. 108). In this research study, it was imperative to interview each individual as it provided a narrative perspective about their instructional practices, efficacy, and use of multimodal texts and their affordances during a global pandemic.

The interviews were conducted during the school day and were conducted one-on-one and face-to-face in the teacher's classroom. Each interview lasted between 40-50 minutes and was semi-structured and in-depth. The interview was scheduled at a time that was convenient for both researcher and participant. Each interview was captured on a digital audio voice recorder.

Throughout the interview process, I allowed ample wait time for the participant to respond to each question. I waited at least 5 seconds after each response before moving to the next question or to further probe for a richer description.

After each interview, I completed a verbatim transcription (Table 3.3) in order to have a deep familiarity with each case study (Merriam & Tisdell, 2016). Once the recordings were transcribed, it allowed me to verify the transcriptions by cross-checking the audio recordings and

the actual transcriptions to ensure accuracy. The transcriptions were uploaded to ATLAS.ti, a data analysis software, where I was able to identify codes that led to common patterns or themes across the three case studies. I was also able to compare their responses to their initial survey and classroom observations in which I was able to ascertain common themes or patterns.

Table 3.3

Excerpt of a Transcribed Interview

Question	Response
1. What are multimodal texts?	Texts that have uh any pictures, colorful banners, um anything that more than just words on a page.
2. What are your thoughts about the use of multimodal texts in ELA instruction?	They are very important especially for younger students to be interested in what they are reading and looking at, to make it more engaging, and to help them read the words more clearly by looking at the pictures.
3. What training have you received in regard to teaching with multimodal texts?	Like outside of my college degree? (R)-Either during college or after (T)-In my early childhood certification and that is what my bachelor's degree is in, and then I received training in CIRCLE testing (Pre-K training), I've had training for Words Their Way, Luck Calkins (Units of Study), Next Step Forward to Guided Reading, Reading and Writing Strategies by Jennifer Serravallo, and then Writing in Small Groups by Jennifer Serravallo.
4. What are the benefits of utilizing multimodal texts in your instruction?	Allowing students to be engaged in their reading, assisting with them reading unknown words or more challenging words. On the computers, to give them another format to be able to read and practice their phonemic awareness skills.
5. When teaching with multimodal texts, what do you believe are the key aspects that you need to teach your students?	Phonemic awareness such as letter sounds, being able to segment words to be able to write them but then also be able to blend sounds to be able to read them, read unknown words, being able to look at the pictures and other graphics included in their texts so they can use those to be able to read.

6. Do you believe there are any negative effects when teaching	Depending on the quality of them, they could be distracting for
with multimodal texts?	some students or misleading in some ways but that is very rare
	for that to happen. (R)-So misleading like what? (T) The pictures
	could be not appropriate to go with the words on the page. They
	are not high-quality books. They could have pictures that do not
	match up with the words.
7. When planning for instruction, what do you consider or think	Does the content of the book coordinate with the content we are
about when you select your texts?	teaching, are the words decodable, are the pictures helpful, are
	any kind of the graphics on the book to help the students read the
	words on the page. Is it engaging? Does it apply to anything
	they're interested in, or they are learning about in other content
	areas.

Data Collection Schedule

Following the school closures from the global pandemic in the spring of 2020, schools were still following COVID safety protocols in the subsequent school years to reduce the exposure and spread of the virus (U.S. Department of Education, n.d.). The data collection for this case study research project spanned over nine months. This included the time from gaining approval from the IRB board to collecting data in the various classrooms (Figure 3.2).

Figure 3.2

Data Collection Schedule



Data Management Strategies

Throughout the research study process, I ensured all data artifacts were maintained and kept confidential. All audio recordings were uploaded to a USB flash drive and then transferred to the researcher's computer, which was passcode protected for storage during the research process. The recordings were only available to the researcher and were stored on a flash drive which was stored in a safe with a security code and access key. Additionally, online software programs such as ATLAS.ti were secured by the researcher's login and password.

Likewise, all photographs were downloaded from the researchers iPhone and transferred to the researcher's computer, which was passcode protected for storage during the research process. All documents, including but not limited to, survey data, interview transcriptions, classroom observations, were stored on the researcher's computer which was passcode protected for storage during the research process. All data and audio recordings will be securely stored for three years following the research. In August 2024, all audio recordings and transcriptions will be destroyed via deletion, shredding, and incineration.

Data Analysis

Data analysis throughout this research study was ongoing. Merriam and Tisdell define the process of data collection and analysis as "recursive and dynamic" (2016, p. 195). Throughout this process, I continuously refined and analyzed my data. For example, I read through all of the surveys and colored coded the responses to begin to make sense of the responses. It was necessary to search for "patterns, insights, or concepts that seem promising" as I started my analytic strategy (Yin, 2018, p. 167). As I continued to read through all of my data, certain processes emerged. The table below detailed the processes for my data analysis (Table 3.4).

Table 3.4

Data Analysis Cycles

Coding Cycle	Type of Coding
First Cycle	In Vivo Coding & Inductive Reasoning
Second Cycle	Identify Patterns & Develop theories and themes

First Cycle of Coding

As I read through the surveys, interviews, and classroom observations, I utilized in vivo coding. In Vivo coding "uses words or short phrases from the participant's own language in the data record as codes" (Miles et al., 2020). I lifted repeated phrases from the participants' responses to help identify patterns within and across the three case studies. For example, I compiled a spreadsheet with each of the interview questions and compared the participants' responses to their responses on their survey (Table 3.5). I read and reread each of the artifacts and continued to take notes and wrote memos (Figure 3.3) refining and recording my thoughts and reflections (Creswell & Poth, 2018). I continued to follow this same process for all of my data artifacts and uploaded them into the ATLAS.ti program.

Table 3.5

Excerpt of Interview Questions and Survey Questions Compiled

Interview question	Survey response	Verifies	Contradicts	What does that tell me?	Questions
21. When planning for instruction, what do you consider or think about when you	HIGH COMFORT/AGREE - I use digital tools and texts to promote student learning. <u>NEUTRAL</u> - Student learning is enhanced with the use of	X	X	VERIFIES Understands what and how to plan utilizing multimodal or multimodal digital texts	Teacher only mentions content and level of text when planning. Does the teacher consider the different
select multimodal digital texts?	digital tools and texts.			CONTRADICTS Why use multimodal or multimodal digital texts if it does not enhance student learning.	affordances that may benefit student learning?

Figure 3.3

Memo Excerpt From Atlas.ti Program

3/10/23, 12:11 PM

I am regrouping and sorting through Case A interview transcripts. I have colored coded and created group names just to help start the sorting/sifting process. I still used in vivo coding as I pulled selected direct quotations. Now that the data is easier to analyze, I am now going to see how it compares to the teacher's initial survey data. I am adding comments as I go to see if it verifies, contradicts, or raises additional questions.

3/12/23, 12:24 PM

<u>CONCERN:</u> As I continue to work through the interview and coding analysis, I just noticed that I shifted my focus or research questions a bit from the initial survey to the interview and classroom observations. The survey primarily addresses teacher comfort levels and self - efficacy of multimodal digital texts. I broadened the definition to include both multimodal and multimodal digital texts for the interview and classroom observations. Looking at how the teacher responded to the interview questions, I will see how the response best aligns with the survey data.

After the first round of coding, I then went back and used inductive reasoning and began

to develop categories (Figure 3.4) These categories were then developed into codes. According

to Creswell and Poth (2018), researchers develop detailed descriptions in situ which are within

the context of the case study. These codes are then refined and developed during the second

cycle of coding.

Figure 3.4

Coding Examples From Atlas.ti



Second Cycle of Coding

During the second cycle of coding, I created a table for each case study and identified the patterns within each of the case studies. Patterns such as content, instruction, mode and type of multimodal text emerged (Table 3.6). I was able to see these patterns across all of the classroom observations. Once I was able to identify the patterns, I was then able to compare the patterns across the three case studies. Miles et al. (2020) stated that a cross-case analysis "enhances generalizability or transferability to other contexts" (p. 95). In these three case studies, it was evident that several themes emerged in regard to teachers' instructional decisions, use of multimodal texts, and their affordances in classroom instruction.

Table 3.6

Table Compiling the Patterns Across the Different Observations

	Observation 1	Observation 2	Observation 3	Observation 4	Frequency
Content	A. Reading	A. Reading	A. Writing	A. Sight Word	Reading = 9
	B. Reading -	B. Reading	B. Writing	Instruction	Reading - Phonemic
	Phonemic	C. Reading		B. Reading	Awareness $= 1$
	Awareness			C. Reading	Reading - Word
	C. Reading - Word			D. Reading	Patterns = 4
	Patterns				Brain Break = 1
	D. Reading				Writing $= 2$
	E. Reading - Word				Reading - Sight
	Patterns				Word Instruction =
	F. Reading - Word				1
	Patterns				
	G. Reading				
	H. Reading - Word				
	Patterns				
	I. Brain Break				
Instructional	A. Whole group	A. Whole group	A. Whole group	A. Whole group	Whole group $= 14$
Grouping	B. Whole group	B. Whole group	B. Whole group	B. Whole group	Collaborative
	C. Whole group	C. Independent		C. Collaborative	Learning $= 3$
	D. Whole group	Practice		Learning	Independent
	E. Collaborative			D. Whole group	Practice $= 1$
	Learning				
	F. Whole group				

G. CollaborativeLearningH. Whole groupI. Whole group

Instruction/ Instructional Strategy

A. Demonstrating Retelling B. Modeling/Showing Demonstrating Retelling Questioning C. Questioning D. Modeling/Showing **Giving Directions** E. Recording words with specific word patterns F. Reflection/Check for understanding G. Listening H. Modeling/Showing I. Modeling/Showing

A. DemonstratingQuestioningB. Check forunderstandingC. IndependentPractice

A. DemonstratingQuestioningB. GivingDirectionsReflectionSelf-Assessment

Questioning B. Giving Directions Modeling/Showing Check for understanding C. Recording unknown words D. Reflection/Check for understanding

A. Demonstrating

Demonstrating = 5Retelling = 2Modeling/Showing = 5 Questioning = 5Giving Directions = 3 Recording word with word patterns = 1 Reflection/Check for understanding = 5 Listening = 1Independent Practice = 1Self-Assessment = 1Recording unknown words = 1

Modes	A. Auditory/Spoken	A. Auditory/Spoken	А.	A. Auditory/Spoken	Auditory/Spoken
	Language	Language	Auditory/Spoken	Language	Language = 16
	Kinesthetic/Gestures	Reading/Writing	Language	Kinesthetic/Gestures	Kinesthetic/Gestures
	Visual	Visual	Reading/Writing	Reading/Writing	= 6
	B. Auditory/Spoken	B. Auditory/Spoken	Visual	Visual	Visuals $= 17$
	Language	Language	B.	B. Auditory/Spoken	Tactile = 1
	Reading/Writing	Reading/Writing	Reading/Writing	Language	Reading/Writing =
	Tactile	Kinesthetic/Gestures	Visual	Reading/Writing	14
	Visual	Visual		Visual	Spatial = 1
	Kinesthetic/Gestures	C. Reading/Writing		Kinesthetic/Gestures	
	C. Auditory/Spoken	Visual		C. Auditory/Spoken	
	Language			Language	
	Reading/Writing			Reading/Writing	
	Visual			Visual	
	D. Auditory/Spoken			D. Auditory/Spoken	
	Language			Language	
	E. Auditory/Spoken			Reading/Writing	
	Language			Visual	
	Reading/Writing				
	Visual				
	F. Auditory/Spoken				
	Language				
	Visual				
	G. Auditory/Spoken				
	Language				
	Reading/Writing				
	Visual				

	H. Auditory/Spoken Language Reading/Writing Visual I. Auditory/Spoken Language Kinesthetic/Gestures Spatial Visual				
Multimodal Text	 A. Multimodal Text Paper-based B. Multimodal Text Paper-based C. Multimodal Text Paper-based D. Multimodal Text Digital E. Multimodal Text Digital F. Multimodal Text - Paper-based G. Multimodal Text Digital H. Multimodal Text Paper-based I. Multimodal Text Paper-based I. Multimodal Text - 	A. Multimodal Text - Paper-based Multimodal Text – Digital B. Multimodal Text - Paper-based C. Multimodal Text - Paper-based	A. Multimodal Text - Paper-based B. Multimodal Text - Paper-based	A. Multimodal Text - Paper-based B. Multimodal Text - Digital Multimodal Text - Paper-based C. Multimodal Text - Digital D. Multimodal Text - Paper-based	Multimodal Text - Paper-based = 13 Multimodal Text - Digital = 7

Findings

From the findings within and across the three case studies, four themes emerged such as professional development, multimodal knowledge, criteria of multimodal texts and instructional considerations.

Figure 3.5

Cross-Case Analysis Themes



Cross-Case Analysis

From the cross-case analysis, the teachers indicated a need for additional professional development in the area of multimodal texts. In the figure above (Figure 3.5), the arrow indicates an upward progression as explicit and purposeful professional development is the first step to help teachers grow in their understanding of how to best provide multimodal instruction to students. By providing explicit professional development, teachers will grow in the knowledge of multimodal texts as well as their affordances and constraints. This new in-depth knowledge will then help teachers make instructional decisions that are informed. Teachers will be able to not only demonstrate how to fully use a texts' affordances to make meaning, but also how to take a critical stance and read beyond the printed text.

Trustworthiness

With qualitative research, it is imperative that ethical considerations are upheld. Lincoln and Guba (1985) established several criteria to ensure qualitative research was trustworthy. Terms such as "credibility, transferability, dependability, and confirmability" (Lincoln & Guba, 1985, p. 300) were defined as this set of criteria. Creswell and Poth (2018) further explained that triangulation and prolonged exposure in the field is necessary to establish credibility. Triangulation (Figure 3.6), as well as second cycle coding, was applied as data was collected with multiple sources such as surveys, interviews, and observations, to enhance the credibility of the studies (Miles et al., 2020).

Figure 3.6

Triangulation Components



Reflexivity

Creswell and Poth (2018) defined reflexivity as "the concept in which the writer engages in self-understanding about the biases, values, and experiences that he or she brings to a qualitative research study" (p. 229). Prior to this research study, I served as the instructional coach to each of the case studies. I was familiar with their overall reading and writing instructional practices, and how they interacted with their students. I had a positive rapport with each of these teachers. However, I had just accepted an assistant principal position at another elementary campus prior to this study. The questions I proposed in regard to teachers' instructional decisions, use of multimodal texts, and their affordances in classroom instruction were not asked or discussed prior to this research study. The answers are authentic and a true reflection of their classroom pedagogy.

Summary

This chapter provided an overview of the methods I used throughout this cross-case research study. Through three individual case studies I was able to gain an understanding of the teachers' instructional decisions, use of multimodal texts, and their affordances in classroom instruction during a global pandemic. Additionally, I was then able to conduct a cross-case analysis. Multiple sources of data were collected such as surveys, interviews and numerous classroom observations. Through two cycles of coding, I was able to use nvivo coding as well as inductive reasoning to identify patterns and themes. In the next chapter, I will share my findings.

CHAPTER IV

RESULTS

The findings for this study were studied with a case-oriented approach (Miles et al., 2020). A case-oriented approach considers a specific case as a "whole entity, looking at configurations, associations, causes, and effects within the case" (Miles et al., 2020, p. 95). Three case studies were individually summarized and then a cross-case analysis was conducted to see if patterns emerged and if these patterns could be generalized to other contexts (Merriam & Tisdell, 2016; Miles et al., 2020).

Summary of Case A

Case A was a novice teacher with 0-5 years experience teaching Kindergarten. She was confident that her prior knowledge had prepared her to use "digital tools and texts to collaborate with students, colleagues, and parents" (see Appendix A). Even though she was confident, she still demonstrated a basic understanding of multimodal texts and multimodal digital texts. She primarily utilized multimodal paper texts and the visual affordances to support students as they navigated station work.

In the following samples below, Case A consistently utilized a multimodal text (Figure 4.1) that featured visual modes throughout her observations to inform the students of the station rotations they were expected to attend within a fifteen-minute rotation cycle. The teacher modeled in a whole group class setting the expectations and each task of what students were expected to do at each of the stations.

Figure 4.1

Photograph of the ELAR Stations



Images such as a horseshoe-shaped table conveyed to students that they were meeting with the teacher in a small group instructional setting to work on a specific skill. For example, during one particular observation, the teacher used audial, visual, and gestural affordances to teach students to segment words into individual phonemes (Figure 4.2). The teacher was teaching the students to segment the word /rim/ into the phonemes, r/i/i/m/.

Figure 4.2



Photograph of Teacher Table Activity of Segmenting the Phonemes in Words

In another station the ABC icon as indicated in Figure 4.1 demonstrated to students they were going to be working on a phonological awareness task or word work activity as indicated by Figure 4.3.

Figure 4.3

Photograph of Phonological Awareness Activity of Matching Words With the Beginning /b/

Sound



In this example, students were expected to sort various picture feather cards and match them to the turkey with the correct beginning /b/ sound. This one particular student demonstrated an 80% mastery of this concept. The third station during the English Language Arts instructional block portrayed a pencil icon. The pencil icon (Figure 4.1) conveyed a writing station to students. Students utilized word cards as scaffolds in Figure 4.4 to support their writing task of describing a turkey.

Figure 4.4

Photograph of Writing Station



Students selected various cards with high frequency words. These cards provided color and text supports to students as they selected various words to form sentences to describe a turkey. For example, the word girl was printed in bold type and written in pink. These affordances helped the students determine appropriate words for their writing.

The fourth station as indicated by a book icon signaled to the students that they were expected to read from their independent reading book box. Books in each of the students' book boxes were compiled by their teacher to be at the student's independent reading level (Figure 4.5). The reading strategy during this reading station was one to one word correspondence.

Figure 4.5

Photograph of Independent Reading Station



Of the five stations in the English Language Arts instructional block, only one was dedicated to a multimodal text that was of a digital format (Figure 4.6). Case A stated during the interview that technology access was limited, and students did not have one to one access to computers until the day before the interview. The lack of accessibility to technology devices was a limiting factor in Case A's instructional consideration when designing instruction for her students. Limited classroom technology access at the beginning of the school year delayed the students' exposure to multimodal digital texts and explains the teacher's copious use of multimodal paper texts. Her use of multimodal digital texts consisted mainly of digital applications and programs such as Seesaw, Epic (Figure 4.6), Dreambox (Figure 4.7), and Amplify (Figure 4.8).

Figure 4.6

Epic



Figure 4.7

Dreambox



Figure 4.8

Amplify



Case A relied heavily on the internet site Epic during the mandatory school closures during the spring of 2020. Epic was a free resource for teachers and students that provided

online leveled texts to students that offered various affordances such as audial and visual. Other online resources such as Dreambox and Amplify were adaptive programs purchased by the school district. These adaptive programs designed specific lessons for students according to their data from the students' results from their Measures of Academic Progress (Northwest Evaluation Association, n.d.), assessments and/or mClass assessments (Amplify, n.d.). Case A preferred utilizing these digital resources as they offered a variety of texts as well as being able to track student progress.

Throughout most of Case A's classroom observations, the use of multimodal texts was primarily of the paper format. Case A focused on the visual, auditory, and reading affordances of texts. Case A taught her students how to use multimodal texts as she modeled and explained how to navigate through the various English Language Arts stations and how to complete the different tasks in each of the stations. Little to no direct explicit instruction was observed in regard to how to navigate or how to utilize the affordances of the multimodal texts and more specifically the multimodal digital texts. Majority of the tasks observed in the stations were completed independently. For further growth, Case A teacher may benefit from additional professional development to deepen her understanding of multimodal texts and how to utilize their affordances.

Summary of Case B

Case B was a mid-career teacher with 6 to 15 years of teaching experience. She was confident on how to "integrate digital tools and texts to promote student learning and creativity" (see Appendix A). In her interview, she stated that she relied heavily on reading level and phonics content when selecting multimodal texts. Most of her instruction was in a whole group setting and was focused on how to locate different types of word patterns in digital texts as well

as how to find different types of text features. For example, in Figures 4.9 and 4.10, Case B teacher taught the students the long /a/ and short /a/ sound as well as the long /i/ and short /i/ sound. She drew the breve symbol and explained how this symbol conveyed that the vowel was short. Likewise, she explained how the macron conveyed that the vowel was long. Case B teacher modeled these vowel patterns by locating words in mentor texts and writing the words on sticky notes. Case B teacher then asked the students to go back to their desks, find and record words with these word patterns from their independent readers. An example of student work was noted in Figure 4.11.

Figure 4.9

Photograph of Teacher Locating Words with Long and Short Vowels in Mentor Text



Figure 4.10

Photograph of the Instruction of the Breve and Macron Symbol



Figure 4.11

Photograph of a Student's Work Sample of Locating Long /a/ Words in a Text


In addition to Case B using multimodal texts for students to locate various word patterns, she also used multimodal digital texts to teach students text features and how to locate them. In Figures 4.12 and 4.13, Case B teacher read a mentor text about snowy owls, labeled the different text features, and explained the purpose of the text features.

Figure 4.12

Photograph of the Instruction of Text Features



Photograph of the Different Text Features



Case B used explicit demonstrating and relied heavily on auditory and visual scaffolds during instruction when she identified and located the different types of text features. As the teacher explicitly demonstrated the text features from the mentor text about snowy owls, she also utilized another multimodal text that she had previously taught the students in order to assess student learning.

The multimodal text she previously taught her students was an anchor chart about the different levels of understanding (Figure 4.14). Case B teacher was able to read the students gestures or raised number of fingers and assess whether or not the students were ready to move on to the next piece of instruction by having the students' self-rate themselves throughout the instruction. It was a formative assessment tool that Case B teacher utilized to assess student learning.

Levels of Understanding



Case B also provided multimodal visual supports of the various text features on an anchor chart that the students were able to reference as they worked collaboratively on text

features (Figure 4.15).

Photographs of Anchor Charts Labeling the Different Text Features



Case B teacher provided ample time for students to collaborate and work together for guided practice. But throughout the guided practice, students needed frequent reminders on what to do and how to use the text affordances appropriately. Case B teacher moved about the room frequently and worked with small groups to check for student understanding and provided guidance and reteaching opportunities if necessary.

Case B primarily utilized the internet site Epic to access multimodal digital texts. The audio affordances in the application helped Case B's students access the reading content. The students worked with a designated partner and read a preassigned leveled text collaboratively. Then they located and recorded key words important to the topic of the text. Students utilized their headphones and listened to the text as it read the story aloud to them. The audio affordances scaffolded the content as the students navigated new vocabulary words associated with their topic. The students stopped the audio and added the new words to their recording sheet as they listened to the text. The first two examples below demonstrated how the students used a stylus to navigate the visual and sound affordances of the multimodal digital text about the topic of a turkey and the different body parts (Figures 4.16 and 4.17).



Digital Text Over the Different Parts of a Turkey

Figure 4.17

Student Work Sample of a New Word Learned From the Reading of the Text

I can read and understand key words that are important to the lipic. Key Words I Found in My Book			
Word: WOFFJe			
My thinking about this key word is What the is the	Red Rally		
under Beak			

In Figures 4.18 and 4.19, these two students illustrated how they used the print affordances of the bold text. With the word "storm cellar" in bold print, it signaled to the students that they were able to click on the word, and it defined the word (Figures 4.18 and 4.19). The students were then able to record the word on their paper (Figure 4.20).

Figure 4.18

Digital Text About Tornadoes



An Example of the Affordances of the Digital Text



Figure 4.20

Student Work Sample Defining a New Unknown Word

word: STOKM CELIAR My thinking about this key word is ... a form or sex of 600 ms blow the Surface of the ground

Case B teacher believed in the value of utilizing multimodal texts during instruction but was less confident when trying new digital tools. During Case B's classroom observations, the use of multimodal texts was primarily of the paper format. Case B focused on the visual, auditory, and reading affordances of texts. Case B taught her students how to find various word patterns and different types of text features in multimodal texts. She taught her students how to use the auditory, visual, and text affordances of multimodal digital texts as evidenced by the text features and vocabulary activity. Direct explicit instruction was observed in regard to how to identify and locate the different text features as well as how the auditory and visual affordances supported the reader and their understanding of text. For future growth, Case B teacher may benefit from future professional development that focuses on building confidence and deepening the understanding of multimodal texts and how to use their affordances during instruction.

Summary of Case C

Case C teacher was a veteran teacher with more than twenty years of teaching fourth grade. Case C teacher was confident on how to integrate digital tools and texts to promote student learning and creativity (see Appendix A). She was mainly self-taught and had spent numerous hours outside of the classroom strolling the web for online ideas and tools to use in the classroom.

Case C teacher selected texts according to the students' reading level and current topic taught in the curriculum. Most of the instruction was conducted in a whole group setting and was focused on writing content. Case C's main instructional strategy was demonstration. Case C explicitly demonstrated what she wanted her students to learn and be able to do independently. For example, during one of the observations, she created a multimodal text and modeled how to develop a thesis statement by color coding the central idea and three supporting reasons (Figure

4.21). The central idea or thesis statement was color coded with a single pink sticky note and then the reasons were color coded with three single orange sticky notes (Figure 4.21).

Figure 4.21

Teacher Notebook Modeling How to Color Code the Thesis and Supporting Reasons

Boxes and Bullets Plan 13
Prompt: What is your favorite time of year?
Central Idea / Thesis Statement
Spring is my favorite time of year. R1 My favorite time of year is spring because my birthday is in the
R2 Another reason I like Spring is because of all the beautiful flowers.
R3 My final reason
I like spring is because of Easter. holiday.

Students were then able to use the color-coded visuals and were able to write a clear and concise central idea or thesis statement (Figure 4.22).



Student Notebook Practicing Boxes and Bullets Strategy and Color-Coding

Case C also explicitly demonstrated for her students how to use Google documents and how to publish a narrative within the learning management platform Google Classroom (Figure 4.23).

Students Publishing a Narrative on Google Classroom



Within Google Documents, she demonstrated how to use specific command keys such as the shift key along with the quotation marks to teach students how to properly type and write using quotation marks (Figure 4.24).



Students Publishing Narrative in Google Documents

Case C equally used multimodal paper-based texts and digital texts in the classroom. Multimodal paper-based texts such as anchor charts were visible and referenced throughout the four observations. Students were able to reference these multimodal paper-based texts as they completed their independent work. As Case C navigated through the different lesson cycles, a multimodal paper-based text typically in the form of an anchor chart was used as a visual tool before Case C transitioned the students to a multimodal digital text. Additionally, Case C had the students complete a self-reflection about their learning at the end of the lessons (Figures 4.25 and 4.26).



Student Typing Response Explaining Their Self-Rating

Figure 4.26

Student Dragging Star Icon to Self-Rate Their Learning



Even though Case C equally utilized multimodal paper-based texts and multimodal digital texts in the classroom, Case C did not consider the text affordances when selecting the multimodal texts. It is an area in which she needs additional support. She did not plan with her team but instead planned with an instructional coach. Case C was a visual learner; therefore, she provided students with visual supports via the numerous multimodal anchor charts. She utilized explicit demonstrations through the use of think alouds to teach her students how to learn new skills and how to navigate new tasks and resources. Case C provided ample guided practice but still supported students individually by coaching them on how to use the texts' affordances. Similar to the other two cases, Case C teacher needs additional professional development to deepen her understanding of multimodal texts and how to explicitly teach students to utilize the various affordances.

Cross-Case Analysis

For cross-case analysis, a goal is to determine if there are patterns across the individually bounded cases that can be generalized and possibly applied and transferred to other contexts (Miles et al., 2020). The patterns that emerged from the surveys, interviews, and classroom observations from the three independent case studies were multimodal knowledge, multimodal texts, instructional considerations, and professional development.

Multimodal Knowledge

Across all three case studies, teachers valued the use of multimodal texts and multimodal digital texts in their classrooms according to the interviews and classroom observations. The three teachers exhibited a basic or surface level of understanding when incorporating multimodal texts in their instruction. For example, Case A primarily utilized multimodal texts in print forms during reading and math stations or during independent work. This classroom was a primary

classroom, so the teacher relied heavily on the visual affordances to help the students understand the task they were expected to complete. For example, during one of the math station activities, students spun a spinner on a ten frame and colored in the correct corresponding number (Figure 4.27). The individual dots conveyed a meaning of one and the ten frames conveyed a meaning of ten. The students were learning one to one correspondence with numbers.

Figure 4.27

Math Station Activity



Likewise at a reading station, Case A teacher helped students learn how to write different letters of the alphabet. Case A teacher utilized colored stencil cards and tracers that supported students as they learned how to shape and build the letters. In this example, the student used the card, followed the colored directions to correctly form the letter. Then the teacher used the hand over hand demonstration to guide the student on how to trace the letter (Figure 4.28).



Teacher Using Letter Tracers to Help a Student Learn How to Form Letters

Case A primarily used multimodal digital platforms that were easily accessible to students such as Epic, Dreambox, and Amplify. Case A teacher stressed in her interview that students needed extensive practice on technology, so she did not have the students use technology beyond these three applications.

Case B, also primarily utilized multimodal texts in print forms. Case B used multimodal printed texts during whole group reading instruction. Case B which was also a primary classroom relied on visual as well as some of the auditory affordances of the various texts. Case C, on the other hand, equally utilized multimodal printed texts and digital texts during whole

group writing instruction. For example, Case B modeled writing by first drawing pictures and then writing about the pictures (Figure 4.29).

Figure 4.29

Example of How Case B Modeled Writing

$\begin{bmatrix} & & & \\ $	Know all about cats. Is have whiskers threat their face, and legs. Whiskers p them move around he dark. Cats ep 18-20 hours ay. 		

Then she had the students draw two pictures and write about their pictures (Figure 4.30). By having the students draw first, it supported the students' writing process by allowing them to organize their thinking about what their animal does and what it looks like before asking them to articulate their words (Horn & Giacobbe, 2007).

Student Writing Sample



Case C, a middle grade classroom, relied mainly on the visual affordances of both the print and digital texts. Since Case C was a visual learner most of her instructional practices reflected the use of visual affordances. For example, during one observation, Case C explicitly demonstrated how to write a nonfiction summary from an article. She read the article aloud and then utilized a think aloud strategy. Case C provided colored coded visuals as scaffold to help her students structure the summary writing (Figure 4.31).

Color-Coded Anchor Charts to Support Students' Learning

Nonfiction Summary passage, Danger, In the ext and author the author explains how scientists are morrie xplain author's purpose (persuade, inform, explain, describe) about what would happen if the forests and jungles in the world were destroyed ocate the main idea If we destroy all of the forests and trees, we will have less oxygen to breathe. ist supporting details because the trees produce our oxygen. So, the author gives us ways to save the trees. (3-5) One idea is to fix the forests we have already ruined. Another idea is to protect the forests that we still have.

The colored coded visuals scaffolded the structure of the summary so students would be

able to read an article, gather the information, and write a summary (Figure 4.32).

Student Work Sample

"inction Texts" Bet Reading ema wet slat eview Text Photographs

Across all three case studies, the teachers demonstrated a basic understanding of multimodal texts and multimodal digital texts. All three case studies primarily utilized visual affordances with audial as the secondary support. The multimodal texts were mainly utilized as supplemental resources to the district curriculum across all three case studies. Therefore, the explicit demonstration and instruction of the use and benefits of the multimodal affordances of the various texts were limited or even omitted during instruction.

Criteria of Multimodal Texts

The three case studies consistently mentioned reading level and content alignment as the top criteria when selecting multimodal texts. Reading level was a top priority for the teachers as they wanted to ensure the students had access to the information. Case A specifically previewed

texts to determine if the students could successfully decode and comprehend the texts. If the text was at an instructional reading level, then the teacher would look to see if the text could be read aloud to the student to provide additional support. All three case studies utilized Epic (Figure 4.33) as a preferred multimodal digital text internet site because of the high volume of texts with audio capabilities.

Figure 4.33



Photograph of Epic and Some of the Digital Tools and Affordances

Additionally, all three teachers stated that the multimodal texts selected must be aligned with the district curriculum and the Texas Essential Knowledge and Skills. Otherwise, the text would not be selected as part of their classroom instruction. In addition to reading level and content alignment, teachers also considered student engagement, variety of texts, and teacher familiarity when selecting multimodal texts. By offering students a variety of texts beyond those in printed forms, the teacher stated that when student interest and interaction increased it ultimately fostered higher levels of student engagement.

Case B and Case C specifically mentioned they only used multimodal texts they are comfortable with during instruction with their students. Learning new multimodal texts, how to use the tools appropriately, and how to use the tools to their fullest potential, it required extra planning and time. Not only did it take additional time for the teachers to learn the new multimodal digital text, but it also required additional instructional time to teach the students the new multimodal text and how to use all of the digital tools. With the time constraints and with the curricular demands of the pacing calendar and curriculum, the time constraints were obstacles.

Instructional Considerations

Whole group instruction was the primary class structure of the case studies when teaching with multimodal texts. Case A also utilized multimodal texts and multimodal digital texts during independent practice. This was observed during both math and reading stations. The activities ranged from the students reading digital texts on Epic where students pointed to words as the text was read aloud to them (one to one correspondence) to a math task where the students rolled dice and located the corresponding number on another page.

Teachers primarily focused on the visual mode or affordances of multimodal texts with auditory modes or affordances closely behind. For example, Case C color coded how to structure an expository essay with a boxes and bullets format (Figure 4.34).



Student Example of Color-Coding Utilizing Boxes and Bullets Strategy

Case C teacher used different colored post-it notes to differentiate between the thesis statement, reasons, and examples. The thesis was coded with a purple sticky note, the reasons were coded with orange sticky notes, and the examples were coded with yellow sticky notes.

Across all three case studies, teachers used paper-based multimodal texts more frequently than multimodal digital texts. The paper-based texts observed were mainly used to practice a specific reading skill, utilized as anchor charts, or to aid students with directions for station work. For instance, Case B was teaching students about text features. The focus of instruction was teaching students to look for different types of text features and then comprehend the information that is conveyed by the different types of text features (Figure 4.35).

Instruction Over Text Features



Teachers used the gradual release of responsibility model (Fisher & Frey, 202; Pearson & Gallagher, 1983; Pearson et al., 2019), as they transitioned from teacher led modeling to student independent practice. Throughout all three case study observations, most of the observations were heavily focused on the teacher-led whole group instruction. Even though the teachers modeled and stated in the interviews how they provide explicit instruction when teaching new skills, there was little to no explicit instruction on how to navigate and utilize the various affordances of multimodal texts. By providing explicit systematic instruction on how to navigate the various affordances and how the affordances can support the comprehension of the texts, the students may have been able to successfully leverage the multimodal affordances.

Professional Development

Even though all three case studies felt confident on how to integrate digital tools and texts to promote student learning and creativity, they all acknowledged they needed more training with selecting and teaching with multimodal texts (Table 4.1). Teachers shared they are currently teaching themselves about various digital sites and tools and experimenting with them first before introducing them to students. The teachers referenced in the interviews that most of the training they received was focused on the current district curriculum resources and their online components. The instruction was mainly focused on the operational structures versus the multimodal affordances. To promote professional growth, teachers need additional training to deepen their knowledge and build capacity in order for them to fully employ multimodal texts and their affordances effectively.

Table 4.1

	Case A	Case B	Case C
Multimodal Knowledge	Basic Some training through college and early childhood program	Basic Some training through recent Texas Education Agency Reading Academies	Basic No formal training Learned from books and internet
Criteria of Multimodal Texts	Reading level of text Content of text aligned with curriculum Is the text engaging? Will students find the text interesting?	Reading level of text Variety of texts	Reading level of text Content aligned with curriculum

Summary Chart of the Cross-Case Analysis Created by the Author

Instructional Considerations	Access to computers Teaching students how to use computers and remember how to use them Assess student understanding?	Access to computers Computer batteries charged? Internet working? Students remember how to log in? Monitor off task behavior Plan detailed step by step directions or video recording	Does the technology work? Reading level of text Interest level Visuals Variety of choice How to teach the text, chart or strategy to them? If digital, how to model step by step? Can students do it on their own?
Professional Development	Self-taught Plan with team Try new things and reflect with team Need explicit - how to teach affordances How to select books that do not have reading level assigned to it.	Self-taught Plan with team Try new things and reflect with team Need explicit - how to teach affordances Need training and then immediate application	Self-taught Plan with instructional coach Need explicit - how to teach affordances Tips and tools

Summary

In Chapter 4, we have seen a summary of each of the individual bounded case studies with a case-oriented approach as well as how the case studies compared to each other. Through surveys, interviews, and several classroom observations, several patterns emerged such as multimodal knowledge, criteria of multimodal texts, instructional considerations, and professional development. Each of the case studies valued the use of multimodal texts and multimodal digital texts in their instruction. All case studies believed they had basic training and knowledge to teach in a global and digital society (see Appendix A). The case studies mainly used the multimodal texts as supplemental resources during instruction and primarily utilized the visual affordances. The secondary support was the auditory support. Case studies B and C utilized whole group instruction as their primary instructional grouping and Case A utilized independent practice or math or reading stations for her instructional grouping. Across all three case studies, multimodal paper texts were primarily used versus multimodal digital texts. This pattern may have been due to the limited access to computers and technology difficulties the school was experiencing during that time. Finally, all three case studies indicated they would benefit from additional professional development on how to fully utilize and leverage multimodal texts during instruction.

CHAPTER V

DISCUSSION

Multimodal literacy is multidimensional and a complex process. Additionally, it is comprised of many elements such as linguistic, cognitive, sociocultural, and developmental (Kucer, 2014). In our modern society and with the advancement of technology, multimodal texts and more specifically, multimodal digital texts communicate information and messages through a variety of modes (Jewitt, 2008; Kress & van Leeuwen, 2001). Understanding how to fully utilize the modes, their affordances and constraints, it is necessary for readers to learn new navigational skills and strategies (Serafini, 2012).

When examining any classroom, there are numerous factors and considerations that influence the decisions and actions of a classroom teacher. In the case of this research study, the Coronavirus pandemic impacted educators and students as schools were forced to close in the spring of 2020. When the school fully reopened in the 2021-2022 school year, protocols were implemented to prevent the exposure and spread of the virus (U.S. Department of Education, n.d.). Not only did the closure of schools force teachers to quickly change how they delivered instruction, but it also impacted the decisions and actions of teachers, and how they employed multimodal texts and their affordances.

The theoretical perspectives were situated with the research lens around instructional decisions, multimodal texts, and multimodal affordances (Jewitt, 2008; Kress et al., 2001; Kress, 2009). This study embraced a social constructivism interpretive framework (Creswell & Poth, 2018) where the case studies focused on gaining an understanding of teachers' instructional decisions, how teachers used multimodal texts, and their affordances during a global pandemic.

The purpose of this study was to describe the planning and teaching considerations teachers utilized as they integrated multimodal texts into their instruction during a pandemic. Three individual case studies of teachers resulted in a cross-case analysis. These three case studies of teachers and their instructional decisions were described across various content areas and grade level classrooms. Guiding my investigation were the following questions:

- 1. How do teachers employ multimodal affordances with instruction during a pandemic?
- 2. What are the teachers' considerations when making instructional decisions regarding multimodal texts and multimodal digital texts?
- 3. How do teachers provide instruction of multimodal and multimodal digital texts to students?

This research study consisted of three individual case studies that were within a bounded system (Creswell & Poth, 2018; Merriam & Tisdell, 2016; Yin, 2018). Descriptive, collective case studies were selected as the methodology because the inquiry investigated the cases or bounded systems over a specific period of time, or more specifically during the global pandemic (Creswell & Poth, 2018; Zainal, 2007). The study took place over a 6-month time period in which surveys, interviews, and multiple classroom observations were collected.

As the researcher's positionality was as an observer as participant, audio recordings were captured during the interview and classroom observations. Photographs were taken to capture the images throughout the classroom as well as the multimodal texts and the affordances students were utilizing. A reflexive journal was used to journal my reflections and questions following the observations. The data collection was recursive and ongoing throughout the research

process. In vivo coding and inductive reasoning were used during the first cycle of coding. During the second cycle of coding, patterns and themes emerged.

In this chapter, the findings are summarized as well as the significance of the findings in relation to the previous body of research. Then the implications will be discussed followed by a conclusion.

Summary of the Results

With this cross-case research study, key patterns emerged. All three case studies valued the use of multimodal texts and digital texts in their instruction. They all stated they had basic training and knowledge to teach in a global and digital society. All three case studies considered the reading level of the text when selecting the text for instruction. Additionally, all three teachers were concerned whether or not the students would have access to the computers for instruction and whether or not the technology and internet would be functional. Finally, all three of the case studies independently learned how to incorporate multimodal texts and digital texts into their instruction. They all were interested in receiving further professional development on how to incorporate multimodal texts and specifically how to teach the affordances to students.

Multimodal Literacy

Multimodal literacy is framed within two different constructs: a triad which consists of oral and written language, social influences, and issues of power and then through a social semiotic lens which primarily focuses on the reading and writing processes (Gee, 2015; Roswell et al., 2013). Throughout this research process, I realized that even though the case studies had an understanding of multimodal texts and multimodal digital texts, the teachers had a very basic framework of understanding. All three teachers stated they received some basic training on multimodal literacy, but it was limited. In the interviews, the criteria the teachers used for

selecting multimodal texts for instruction was the reading level, how the texts aligned with the content as well as with the state standards, the variety of texts, and the interest level of texts. Overall, the number one key criterion the teachers used for selecting texts was the text level.

Teacher Self-Efficacy and Technology Implementation

Through a series of successful experiences, individuals develop a level of competence and self-efficacy (Bandura, 1995). The implementation of technology into classroom instruction is no exception. As teachers experiment and have positive, beneficial, and successful technology experiences in their classroom instruction, they are likely to have higher levels of self-efficacy which in turn leads to higher levels of confidence and lower levels of stress (Buric and Kim, 2019). From the findings from this research study, the teachers did not always have successful technology experiences. The three case studies preferred multimodal paper texts over multimodal digital texts as technology access and internet access was limited and inconsistent. For example, in Case A, the teacher commented in her interview, the students had just received their technology cart earlier in the week which was in the month of October. The district at the time was not 1:1 so classrooms were having to share devices. Likewise, Case B, the teacher commented that she was always concerned whether or not the devices were charged and whether or not the internet would work. Finally, the Case C teacher stated that she always had a backup plan in case technology did not work. It is clear due to possible technology concerns and issues, teachers preferred to use multimodal paper texts as they were more reliable for classroom instruction.

Emergency Remote Teaching and the Pandemic

With the forced school closures due to the global Coronavirus pandemic in 2020, teachers had to change their instructional practices with very little preparation time (Reynolds et al., 2022;

Exec. Order No. GA 08, 2020). ERT was this new shift of instructional practice as teachers quickly shifted from a traditional face to face setting to now a new online classroom setting. Teachers were tasked to learn how to engage learners in a new way.

Even after schools reopened their campuses, COVID safety protocols were still in place to limit the exposure and spread of the virus (U.S. Department of Education, n.d.). Teachers were still tasked with changing their instruction to follow these safety protocols. In this research study, the three case studies stated that during the emergency remote teaching time span, most of their technology implementation was self-taught, and it was time consuming. Two of the three cases planned with their grade level team, tried the new technology implementation on their own, and then reported their results back to the team to discuss their success and/or frustrations with the technology implementation. Case C reported in her interview how she researched blogs and the internet for resources and videos on how to teach certain lessons online, as well as how to gain several instructional ideas from others.

Multimodal Texts and Teacher Decisions

Multimodal literacy encompasses more than just text, color, images, and videos. Multimodal literacy includes formats such as paper texts as well as digital texts. With all of the different modes and formats, it is imperative to consider the affordances, the constraints, as well as the socio-semiotic patterns of texts (Hashemi, 2017; Kress et al., 2001; Kress, 2002, 2013; Yap & Gurney, 2023). Affordances of texts aid readers in any given reading experience. The affordances of the screen convey meaning through images, color, and even sound (Jewitt, 2008).

In each of the case studies, the teachers exhibited a basic understanding of multimodal texts. However, they lacked the knowledge of the intricacies behind and within multimodal texts. The teachers used multimodal texts and multimodal digital texts and their affordances at a

very surface and superficial level. Most of the affordances utilized were visual and aural affordances. Visual affordances such as pictures, graphics, and drawings aided younger readers as they navigated the printed texts. In multimodal digital texts aural features read the text aloud to readers which provided access to the content for young readers, emergent bilinguals, or students with learning disabilities.

It is also important to note that not only do multimodal texts and multimodal digital texts have affordances, but they also have constraints. The affordances and constraints depend on the needs of the reader. For example, if a student is reading a text that is above their independent reading level, the visual and aural affordances support the reader, and it helps the reader access the content and make meaning. Conversely, if another student reads the same text and the text is below the student's reading level, then the visual and aural affordances may be constraints as the student utilizes the affordances when they are not needed as a support.

Even though these affordances supported readers and their access to the content, the level of discussions about context, design elements, or ideas were never discussed. This deeper understanding of how multimodal texts are composed, and how it is critical to "read texts as social practice" (Garcia et al., 2018, p. 74) was missing. Additionally, allowing the students to explore and be active participants in their own learning was limited or non-existent (Price-Dennis et al., 2015).

Implications

Teachers

Moving forward, this research study has demonstrated that teachers need formal training and professional development that explicitly teaches how to select, teach with, and leverage the affordances of multimodal texts. Even though the teachers exhibited a basic understanding and knowledge that technology is constantly evolving, teachers need to have a deeper skill set especially in regard to multimodal texts, their affordances and constraints, and reading texts as social practice.

Another implication for teachers is to be purposeful when using multimodal texts in their instruction. By being strategic and thinking ahead about the texts teachers want their students to read, teachers can then plan to specifically teach the affordances and plan to ask questions about the design and teach students to become critical thinkers of texts. By doing so, the use of multimodal texts will become the primary texts instead of the supplemental texts as was the situation in the research study cases.

The final implication for teachers is to engage in the collaboration, sharing of knowledge, and reflective practice as they continue to work and engage with multimodal texts and multimodal pedagogy. Through reflective practice, teachers will be able to identify their strengths and weaknesses in order to refine their future practices. This will in turn create additional positive and successful experiences which will lead to higher self-efficacy rates, higher levels of confidence and satisfaction levels, and lower levels of stress.

Teacher Leaders

Teacher leaders are critical to the effectiveness and implementation of any campus initiative. Therefore, they are instrumental in leading the change on their campus by building teachers' expertise in multimodal texts and instruction. Teacher leaders can stay abreast of current research and best practices with multimodal literacy, pedagogy, and the technology access needed to utilize them. By doing so, they will then be able to have the knowledge to build capacity in teachers as they help them grow in their understanding of multimodal texts and their affordances and constraints. Additionally, teachers will learn how to teach students how to

critically analyze multimodal texts. Teacher leaders can build capacity in teachers by facilitating high quality professional development on multimodal texts by leading professional learning communities, mentoring, modeling lessons, and sharing resources.

Additionally, teacher leaders can collaborate with teachers, help them plan to integrate multimodal texts into curricula, units and lessons intentionally and not just as a supplemental resource. This will encourage teachers to look ahead and consider not only alignment of the text to the standards and to the student's reading level, but it will also allow the teacher to be intentional about the text's affordances, possible constraints, and what cultural considerations or questions may need to be posed. The multimodal text is no longer a supplemental text as the teacher has taken the time to consider all of the components, affordances, and constraints of the multimodal text.

Finally, teacher leaders can highlight the need for additional funding for resources to adequately equip classrooms with multimodal digital texts with the technology needed to access them. This could be as simple as purchasing a subscription to an online resource or as complex as a technology upgrade with devices and stronger broadband internet.

Policy Makers

Policy makers should prioritize the funding, teacher training, and the resource acquisition to explicitly address multimodal literacy. By doing so, on a federal, state, and district level, it will narrow the digital divide for students. No longer will students not have access to internet services or digital devices. The technology infrastructure and digital resource funding policies need to ensure that all classrooms have access to current devices and strong broadband internet strengths so teachers and students can engage and interact with multimodal digital texts. Programs such as Title I should include multimodal literacy as a program that is eligible
for funding. Funding should also be allocated for instructional resources that includes monies for multimodal print and digital texts.

Policy makers can also create policies to incorporate multimodal literacy training as a prerequisite for teacher education programs so new teachers have the knowledge of how to implement multimodal instruction as soon as they enter the classroom. This can be accomplished through multimodal literacy theory, research, and methods courses that are explicitly taught in teacher credential coursework. Course assignments should include demonstrations of and reflection of multimodal instructional design. Preservice clinical practice and teaching placements should be with K-12 teachers that model and implement appropriate use of multimodal texts and instruction.

Policy makers can also update standards and curriculum frameworks. By doing so, it will create clear and concise expectations and competencies to include multimodal texts across all content areas. Assessment practices can also be updated to include multimodal texts. This can be updated to include multimodal examples and the evaluation of the students' ability to use the texts' affordances.

Researchers

Implications for researchers is that the research base of multimodal literacy and pedagogy is expanding in regard to how teachers can improve their instructional practice. For example, research can identify the best practices in teaching and leveraging multimodal affordances perhaps by different grade levels. Just as in the case of this research study, the different grade levels utilized the multimodal affordances differently according to the needs of the student.

In regard to professional development, more research is needed on effective professional development models on building teacher capacity with multimodal literacy and

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texts. Researchers can also develop instructional frameworks to evaluate teacher expertise with multimodal literacy to support professional learning. Additionally, more research is needed on the impacts and outcomes of multimodal instruction in regard to student literacy achievement, engagement, and creativity.

Furthermore, researchers need to focus on systemic policies and programs that succeed at improving multimodal instruction by specifically looking at the barriers such as lack of technology access and teacher reluctance to use digital tools. By doing so, it will give an insight to how this national problem can be addressed so the national technology divide can be narrowed and eventually closed.

Conclusion

In the cross-case analysis, it revealed that the teachers had a basic knowledge of multimodal texts. Through their interviews, it was noted a desire for additional explicit training and professional development about multimodal texts, their affordances and constraints so they can grow in their understanding and instructional expertise. When the teachers receive the explicit professional development over the best practices of multimodal texts and their affordances, then their multimodal knowledge grows which will then change how the teachers make their instructional decisions. Instead of using multimodal texts as a supplemental text or activity, they can shift their instruction by incorporating the multimodal text or digital text as the primary source or text. The teachers will then be able to explicitly teach the students how to notice and name the affordances as well as how the affordances can help the students make meaning. The teachers can then be intentional by incorporating questions that would encourage or guide the students to think critically about a text. As students learn how to navigate

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multimodal texts and be strategic when reading them, teachers are not only empowering readers but helping them to be critical readers for the 21st century.

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APPENDIX A

INSTRUCTIONAL TECHNOLOGY COMFORT LEVELS AND SELF-EFFICACY SURVEY

Instructional Technology Comfort Levels and * : Self-Efficacy Survey adapted from James Gentry's Educator Technology Self-Efficacy Survey (ETS-ES) Read each descriptor and select the box that best reflects your comfort levels as a teacher. Email * Valid email This form is collecting emails. Change settings I know how to use online tools such as Google Meets and Zoom effectively. * Low Comfort/Disagree Neutral High Comfort/Agree I know how to develop technology-enriched learning activities for active learning. *
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 Neutral High Comfort/Agree I know how to develop technology-enriched learning activities for active learning. * Low Comfort/Disagree
 High Comfort/Agree I know how to develop technology-enriched learning activities for active learning. * Low Comfort/Disagree
I know how to develop technology-enriched learning activities for active learning. *
Low Comfort/Disagree
O Neutral
High Comfort/Agree
I know how to promote students' reflections using online collaborative tools. *
Low Comfort/Disagree
Neutral
High Comfort/Agree

I encourage my students to use digital tools and texts that are unfamiliar to me. \star
Low Comfort/Disagree
Neutral
High Comfort/Agree
I know how to set up an online classroom where students can express themselves digitally. \star
Low Comfort/Disagree
Neutral
High Comfort/Agree
III
I know how to model collaborative learning across a digital platform. *
I know how to model collaborative learning across a digital platform. *
I know how to model collaborative learning across a digital platform. *
I know how to model collaborative learning across a digital platform. * Low Comfort/Disagree Neutral High Comfort/Agree
I know how to model collaborative learning across a digital platform. * Low Comfort/Disagree Neutral High Comfort/Agree
I know how to model collaborative learning across a digital platform. * Low Comfort/Disagree Neutral High Comfort/Agree I know how to collect, analyze, and report data on my students' performance which drives my * ELA instruction.
I know how to model collaborative learning across a digital platform. * Low Comfort/Disagree Neutral High Comfort/Agree I know how to collect, analyze, and report data on my students' performance which drives my * ELA instruction. Low Comfort/Disagree
I know how to model collaborative learning across a digital platform. * Low Comfort/Disagree Neutral High Comfort/Agree I know how to collect, analyze, and report data on my students' performance which drives my * ELA instruction. Low Comfort/Disagree Neutral Neutral

I know how to train my students on how to use digital tools and texts. * Low Comfort/Disagree Neutral High Comfort/Agree I know how to independently navigate and explore new digital tools and texts and incorporate * them into my instruction. Low Comfort/Disagree	I know how to integrate digital tools and texts to promote student learning and creativity. * Low Comfort/Disagree Neutral High Comfort/Agree
I know how to train my students on how to use digital tools and texts. * Low Comfort/Disagree Neutral High Comfort/Agree I know how to independently navigate and explore new digital tools and texts and incorporate * them into my instruction. Low Comfort/Disagree	
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I know how to independently navigate and explore new digital tools and texts and incorporate * them into my instruction.	
Neutral High Comfort/Agree	I know how to independently navigate and explore new digital tools and texts and incorporate * them into my instruction. Low Comfort/Disagree Neutral High Comfort/Agree

Section 2 of 2
Instructional Technology Comfort Levels and Self-Efficacy Survey X adapted from James Gentry's Educator Technology Self-Efficacy Survey (ETS-ES) Read each descriptor and select the box that best reflects your self-efficacy levels as a teacher.
My prior learning has prepared me to use digital tools and texts to collaborate with students, * colleagues, and parents. Low Efficacy/Disagree Medium Efficacy/Neutral High Efficacy/Agree
I have the time to effectively create online lessons utilizing digital tools and texts. * Low Efficacy/Disgree Medium Efficacy/Neutral High Efficacy/Agree
I consistently teach students how to use new and unfamiliar digital tools and texts. * Low Efficacy/Disgree Medium Efficacy/Neutral High Efficacy/Agree

My technology skills permit my ability to acquire and keep pace with new digital tools and texts.
C Low Efficacy/Disagree
Medium Efficacy/Neutral
High Efficacy/Agree
I value the use of digital tools and texts to support research, teaching, and learning. *
Low Efficacy/Disagree
Medium Efficacy/Neutral
High Efficacy/Agree
I have the knowledge and skills I need to teach in our global and digital society. *
Low Efficacy/Disgree
O Medium Efficacy/Neutral
High Efficacy/Agree
I know the rules of online etiquette (netiquette) and how to appropriately interact with others * online.
C Low Efficacy/Disagree
Medium Efficacy/Neutral

I use digital texts and communication tools for my students to interact with other students for * online discussions and project teamwork. Low Efficacy/Disagree Medium Efficacy/Neutral High Efficacy/Agree
I address different student needs with the use of digital tools and texts. * Low Efficacy/Disagree Medium Efficacy/Neutral High Efficacy/Agree
I use digital tools and texts to promote student learning. * Low Efficacy/Disagree Medium Efficacy/Neutral High Efficacy/Agree
Student learning is enhanced with the use of digital tools and texts. * Low Efficacy/Disagree Medium Efficacy/Neutral High Efficacy/Agree