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The Response of a Rural Missouri Middle School to the COVID-19 Pandemic: A Case Study of Instruction, Communication, and Access to Technology

Christian Scott Meier

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by

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A Dissertation submitted to the Education Faculty of Lindenwood University in partial fulfillment of the requirements for the degree of

Doctor of Education

School of Education

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Dr. Sherry DeVore, Dissertation Chair	11-22-2021 Date
Dr. Shawn Poyser, Committee Member	11-22-2021 Date
Dr. Randy Caffey, Committee Member	11-22-2021 Date

Declaration of Originality

I do hereby declare and attest to the fact that this is an original study based solely upon my own scholarly work at Lindenwood University and that I have not submitted it for any other college or university course degree.

Full Legal Name: Christian Scott Meier

Signature:  Date: Nov. 22, 2021

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Abstract

The doors of a rural Missouri middle school were closed in mid-March for what turned out to be the remainder of the 2019–2020 school year (Schremp Hahn, 2020). Many schools were unprepared for the swift nature with which the shutdowns occurred (Bernhard, 2020a). The purpose of this case study was to examine the opinions and perceptions of parents, teachers, and the principal at a Missouri middle school regarding the school's response to the COVID-19 closure to determine the best possible strategies for mitigating learning loss during future extended closures. The summer slide was the lens through which the study was viewed, specifically in the areas of instruction, communication, and access to technology. The sample included 241 parents of the Missouri middle school students, 20 certified teachers, and one principal. An online survey was sent to the parents, teachers, and principal of the middle school and included the option for a voluntary follow-up phone interview. Phone interviews were conducted with four parents, four teachers, and one principal. Descriptive and inferential statistics were used to analyze quantitative data. A Mann-Whitney *U* test and a Kruskal Wallis rank-sum test were performed to analyze nonparametric data. Qualitative data were analyzed using open and axial coding. This case study revealed the importance of professional development regarding video conferencing platforms and distance learning pedagogy. The findings of this study further revealed the importance of improving communication practices and accurately assessing student access to the Internet and Internet-capable devices to better respond to future extended closures.

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Chapter One: Introduction

The doors to a rural Missouri middle school were closed in mid-March for what turned out to be the remainder of the 2019–2020 school year (Schremp Hahn, 2020). While news outlets had been documenting the steady spread of COVID-19 across the country (Dasrath & Helsel, 2020), many schools were caught unprepared for the swift nature of school shutdowns (Bernhard, 2020a). Like many educational stakeholders around the state and the country, the parents, teachers, and principal at Missouri Middle School (a pseudonym) found themselves scrambling to adapt to the new educational landscape.

The purpose of this case study was to examine the opinions and perceptions of parents, teachers, and principal at Missouri Middle School regarding the school's response to the COVID-19 school shut down through the lens of the summer slide. The *summer slide* is a colloquial term for the real or perceived academic regression experienced by students during summer break between grade levels (Webber-Bey, 2019). This case study was conducted to determine best practice strategies for prevention of learning loss due to an extended school closure.

Background of the Study

The summer slide has long been the subject of researchers (Pitcock, 2018). The first known study on the topic was conducted by Dr. William White in 1906, while he was working at the State Normal School in New Paltz, New York. White (1906) wanted to quantify the extent to which his students failed to retain mathematical knowledge over summer vacation. Even in 1906, there appeared to be broad acceptance of a summer

slide, as Dr. White referred to questions regarding summer knowledge loss as “oft-asked” (p. 185). While extremely limited in scope (the study included only eight participants), the results of the study confirmed a decrease in accuracy and speed among the test subjects when solving math problems (White, 1906). White (1906) also indicated the effectiveness of a series of classroom reviews of prior knowledge in the fall for mitigating nearly all measured summer regression.

The Beginning School Study is another example of research regarding the summer slide (Alexander et al., 2007a; Marakoff, 2021; von Hippel, 2019). This study differed greatly from the study performed by White both in scope (over 700 initial participants) and duration (the researchers followed the participants from first grade through eighth grade, an eight-year span from 1982–1990) (von Hippel, 2019). Von Hippel (2019) compared the differences in student performance between low and high-poverty schools (p. 11). The results of the study indicated all increases in learning gaps between students in low and high-poverty schools took place during the summer months, leading to a cumulatively large gap between the two subsets by the conclusion of the eighth-grade year (von Hippel, 2019).

The expansion of the scope of research into the summer slide continued with the Early Childhood Longitudinal Study (Mulligan et al., 2019) and the Measures of Academic Progress conducted by the Northwest Evaluation Association (NWEA) (Kuhfeld & Tarasawa, 2020b). These two longitudinal studies, both of which consisted of a nation-wide sampling of students, resulted in data that seemed to deviate from previous studies (Kuhfeld, 2019). Instead of indicating a steady widening of the learning gap

between low and high-poverty students over time, the data indicated the gap between the two subsets remained relatively constant (Kuhfeld, 2019).

Theoretical Framework

The faucet theory is based on the concept that all educational resources provided to students during the school year can be thought of, metaphorically, as water emerging from a spout or faucet (Entwisle et al., 2001; Pitcock, 2018). During the school year, these resources flow consistently and equally to all students; however, when school is not in session, the faucet is turned down, or in some cases, turned off completely depending on a student's circumstances (Pitcock, 2018; Quinn & Polikoff, 2017). Achievement gaps occur due to various disparities in access to resources at home or in the community (Quinn & Polikoff, 2017). It would be reasonable to assume the longer the faucet is off, the greater the regression of knowledge.

When the administration of Missouri Middle School closed the doors to seated, in-person learning in March of 2020 due to the pandemic, the flow of resources was significantly truncated for all students (Entwisle et al., 2001; Pitcock, 2018). The faculty and staff adopted a "do no harm" approach to remote learning that included such strategies as posting links to enrichment resources online, creating hard copy packets for parents to pick up in-person, and calling or emailing students with words of encouragement. No new instruction was delivered, partly due to the uncertainty of how long the shutdown might last. The faucet was slowed considerably, if not stopped completely, for most students.

Statement of the Problem

Learning loss, the main topic of this study, has been a topic of discussion for many years (Kuhfeld & Tarasawa, 2020b; Mulligan et al., 2019; von Hippel, 2019; White, 1906). The authors of several previous studies attempted to quantify learning loss of one group of students and compare those losses to another group of students, usually along socio-economic status lines (Kuhfeld & Tarasawa, 2020b; Mulligan et al., 2019; von Hippel, 2019; White, 1906). None of the reviewed studies appeared to have accounted for a summer break, or any extended break in instruction, of the magnitude resulting from the COVID-19 pandemic. Multiple news organizations have recently sounded the alarm regarding the impending regression of knowledge and academic performance of students due to the prolonged shuttering of physical school (Goldstein, 2020; Jarret & Pomrenze, 2020; Strauss, 2020). Mixed-methods research on individual school responses to the COVID-19 pandemic had yet to be published at the time of this current study.

The problem underlying the purpose of this study was the impact of summer slide due to the pandemic. The potential causes of this regression have been researched several times using a myriad of methods and subjects (von Hippel, 2019). Typically, summer break is a scheduled, known period of time looked forward to and planned for by students, parents, teachers, principals, and even businesses and communities, lasting for a period of approximately six weeks (Cooper, 2003). Most of the existing research focused primarily on the summer slide fitting this description (Kuhfeld, 2019; McEachin et al., 2018; Pitcock, 2018; Quinn & Polikoff, 2017; von Hippel, 2019). The COVID-19 pandemic, which began in the United States in January of 2020 (Ghinai et al., 2020),

eventually forced the closing of all Missouri schools on March 21, 2020, rendering in-person classroom instruction closed for the remainder of the 2019–2020 school year (Patrick & Erickson, 2020, p. 2). Therefore, the gap between the end of the 2019–2020 school year and the beginning of the 2020–2021 school year was approximately 20 weeks instead of the typical six.

Researchers have conducted several studies to quantify and analyze the effects, if any, of the summer slide (Kuhfeld, 2019; McEachin et al., 2018; Pitcock, 2018; Quinn & Polikoff, 2017; von Hippel, 2019). Those efforts were focused on a wide range of subjects, encompassed a variety of timeframes, and in many cases were designed to uncover various reasons for summer learning gaps along racial, gender, and socio-economic lines (Kuhfeld & Tarasawa, 2020b; Mulligan et al., 2019; von Hippel, 2019). Few, if any, of the preceding researchers appear to have considered the human, qualitative element of perceptions to inform future protocols.

Missouri Middle School, located in a rural county with 19,443 residents, is not well-suited for remote learning when compared with the rest of the state (United States Census Bureau, 2019). While 80.1% of households in Missouri Middle School's county reported owning a computer, only 66.5% of households reported access to a broadband Internet subscription; overall in Missouri, 87.3% reported owning computers and 77.6% had broadband Internet access (United States Census Bureau, 2019, Population section). Due to the statewide school shutdown, all statewide assessments were cancelled for the 2019–2020 school year (MODESE, 2020). This disparity in Internet access, coupled with a lack of current and relevant testing data, made replicating prior research methods difficult.

Purpose of the Study

The purpose of the case study was to determine strategies and best practices to be deployed in the event of a future extended school closure. Similar to the approach first taken by White at the State Normal School in New York in 1906, the scope of this study was limited in nature and focused on the perceptions of parents, teachers, and the principal of a single middle school building in central Missouri. Furthermore, the scope was limited to the areas of instruction, communication, and access to technology. The strategies presented as a result of this case study can potentially be applied to other buildings and districts. It will be up to subsequent researchers to gauge the educational impact of these strategies, if any, on student learning loss due to an extended school closure.

Research Questions and Hypotheses

The following research questions and hypotheses guided the study:

1. What are the opinions of parents, teachers, and the principal regarding the strategies implemented at a rural middle school to prevent learning loss during an extended school closure in the areas of instruction, communication, and access to technology?
2. In the opinion of parents, teachers, and the principal at a rural middle school, what strategies would better prevent learning loss during an extended school closure in the areas of instruction, communication, and access to technology?
3. What is the significant difference between the perceptions of parents and teachers regarding the strategies implemented at a rural middle school to prevent

learning loss during an extended school closure in the areas of instruction, communication, and access to technology?

$H3_0$: There is no significant difference between the perceptions of parents and teachers regarding the strategies of a rural middle school to prevent learning loss during an extended school closure in the areas of instruction, communication, and access to technology.

$H3_a$: There is a significant difference between the perceptions of parents and teachers regarding the strategies of a rural middle school to prevent learning loss during an extended school closure in the areas of instruction, communication, and access to technology.

4. What is the significant difference between the perceptions of teachers and the principal regarding the strategies at a rural middle school to prevent learning loss during an extended school closure in the areas of instruction, communication, and access to technology?

$H4_0$: There is no significant difference between the perceptions of teachers and the principal regarding the strategies of a rural middle school to prevent learning loss during an extended school closure in the areas of instruction, communication, and access to technology.

$H4_a$: There is a significant difference between the perceptions of teachers and the principal regarding the strategies of a rural middle school to prevent learning loss during an extended school closure in the areas of instruction, communication, and access to technology.

Significance of the Study

There have been many prior studies generally focused on the reasons for summer learning loss (Kuhfeld, 2019; McEachin et al., 2018; Pitcock, 2018; Quinn & Polikoff, 2017; von Hippel, 2019). Most, if not all, of those studies focused solely on quantitative data based on achievement exam scores, survey instruments, or a combination of data points (Kuhfeld & Tarasawa, 2020b; Mulligan et al., 2019). This study deviated from prior research with the addition of a qualitative component via teacher, parent, and principal interviews. Modern quantitative research into summer learning loss began with a small case study (White, 1906). It seemed fitting to add a qualitative investigation of learning loss, whether due to summer break or COVID-19, via a small case study.

Qualitative data obtained via interviews were a key component for informing future practice and protocols. The open-ended questions centered around three key themes of instruction, communication, and access to technology. Furthermore, multiple individual perceptions, representing three different groups (parents, teachers, and administration), were collected and analyzed for commonalities and trends. By surveying parents, faculty, and the principal, general perceptions were identified and analyzed regardless of Internet access or test scores. Since Missouri Middle School's response to the extended school closure targeted households with Internet access (web resources and email contact), as well as households without (paper packets and phone calls), a qualitative research method could better gauge the overall response. The results were then used to inform, refine, and replace future strategies and protocols.

The data obtained from the surveys and interviews, after appropriate analysis, provided the faculty and staff of Missouri Middle School several opportunities for

improvement. First, the quantitative data revealed a disconnect between the perceptions of parents and teachers regarding the frequency, type, and helpfulness of teacher communication during the break. Second, data from the same instruments revealed several areas where, according to parents, teachers could improve remote instruction. Third, the qualitative data obtained via interviews offered deeper insights and context to the quantitative data. Subsequent administration meetings and faculty meetings were utilized to disseminate the information and alter the policies and protocols for future shutdowns, including Missouri Middle School's Alternative Methods of Instruction (AMI) plan.

Definition of Key Terms

For the purposes of this study, the following terms are defined:

Blended Learning

As defined by Schultz and DeMers (2020):

> [Blended learning is]… a combination of synchronous and asynchronous learning in a virtual environment, blending interactions such as live synchronous sessions with posted asynchronous discussions, assignments, and videos. (p. 143)

COVID-19

According to Merriam-Webster (2019):

> [COVID-19 is]… a mild to severe respiratory illness that is caused by a coronavirus (Severe acute respiratory syndrome coronavirus 2 of the genus Betacoronavirus), is transmitted chiefly by contact with infectious material (such as respiratory droplets) or with objects or surfaces contaminated by the causative

> virus, and is characterized especially by fever, cough, and shortness of breath and may progress to pneumonia and respiratory failure (para. 1)

Faucet Theory

According to Pitcock (2018), "[The faucet theory describes how] public schooling creates a flow of resources to all students during the school year – books, meals, teachers, and organized activities, among others – that keep all students learning and growing" (p. 5).

Hybrid Learning

Hybrid learning, as stated by Schultz and DeMers (2020), "…is a combination in various percentages of on-ground versus online instruction, which offers flexibility to students between the two types of learning interaction" (p. 143).

Primary Parent

The primary parent is the first parent entered into a student information system but the title carries with it no legal meaning or weight, including custody (District Database, 2020).

Remote Learning

Remote learning is a term used "…to describe emergency measures to move instruction from physical schools to homes in online and offline modes" (Fullan et al., 2020, p. 33).

Summer Slide

According to Webber-Bey (2019), "The loss of academic skills that occurs when school is not in session" is termed summer slide (p. 4).

Delimitations, Limitations, and Assumptions

The scope of the study was bounded by the following delimitations:

Time Frame

Data collection for the study took place in Spring 2021.

Location of the Study

The study was conducted on the campus of Missouri School District (a pseudonym), a rural district of approximately 1,100 students located in the Central Region, according to the Missouri Regional Professional Development Center (MODESE, n.d., 2019).

Sample

The pool of potential parent participants was sourced using the school's student information system. There were 241 primary parents listed for middle school students (District Database, 2020). The pool of potential teacher participants was sourced using the school's payroll system. There were 20 certified teachers employed at Missouri Middle School (District Database, 2020). The pool of potential principal participants was sourced using the school's payroll system. There was one principal employed by Missouri Middle School.

Criteria

All participants had to be affiliated with Missouri Middle School. Parent participants included anyone who had at least one student enrolled in Missouri Middle School during the 2019–2020 school year. Teacher participants included any certified teachers employed at Missouri Middle School during both the 2019–2020 and 2020–2021

school years. The principal was employed at Missouri Middle School during both the 2019–2020 and the 2020–2021 school years.

The following limitations were identified in this study:

Sample Demographics

Both the population and the sample were limitations to this study. The population consisted of the parents, certificated teachers, and building-level principals at Missouri School District. From this relatively small population, an even smaller sample consisting of the parents, certificated teachers, and one building-level principal at Missouri Middle School was selected.

Access

The study was dependent upon access to parents, certificated teachers, and the principal of Missouri Middle School, specifically in terms of collecting the survey instruments and conducting follow-up interviews. Subject participation in both the surveys and interviews was voluntary, and the potential existed for subjects to decline participation. Furthermore, some parents were newly enrolled in the district and were not able to comment on the district's response to the COVID-19 pandemic. Similarly, some certificated teachers employed during the 2019–2020 school year relocated prior to the beginning of the 2020–2021 school year. Some parents could not be reached due to incorrect or missing contact information in Missouri Middle School's student information system. The effects of these limitations were potentially mitigated using a purposive sampling method.

Instrument

The survey instrument presented several potential limitations. First, respondents may not have provided accurate, honest answers. Due to the length of time between the pandemic shutdown and the data collection, respondents may have lacked clarity in their recollections and perceptions of the school's response (Mueller, 2019). Finally, the answer options provided could be considered somewhat subjective. For example, the definition of "somewhat agree" can vary among individual respondents (Smith, 2020). The interview questions presented similar potential limitations, especially regarding respondent honesty. To mitigate the effect of these limitations, the survey instrument and interview questions were used with permission and modified from those created by Dr. Titinesha Llewellyn for her 2019 dissertation, *A Program Evaluation of Student and Teacher Perceptions of an Online Edgenuity High School Course Program in an Urban High School*.

Lack of Prior Research

While there have been prior studies conducted with a focus on the summer slide (Alexander et al., 2007a; Marakoff, 2021; Mulligan et al., 2019; Kuhfeld & Tarasawa, 2020b) and remote learning (Kuhfeld & Tarasawa, 2020b; von Hippel, 2019), little research has been found focusing on school shutdowns due to COVID-19. At the time of this study, no research was found focusing on parent, teacher, or principal perceptions of a school's response to the pandemic. Findings from prior studies were synthesized and applied to inform the design of this study.

Timing of Study

Data collection for the study did not begin until March 2021. Surveys and interviews took place approximately four months after the beginning of the 2020–2021 school year, seven months since the conclusion of the 2019–2020 school year, and nine months after the beginning of the pandemic shutdown. There existed a potential for partial or incorrect recollection of respondent perceptions from March 2020 or a blending of those perceptions with more recent thoughts (Mueller, 2019). To mitigate this limitation, respondents were reminded on both the survey instrument and during the interview component to focus only on the time period between March and May 2020. Also, it is pertinent to note Missouri Middle School did not have to switch to remote learning during the first semester of the 2020–2021 school year, which helped to prevent the co-mingling of respondent memories and perceptions.

The following assumptions were accepted:

1. The responses of the participants were offered honestly and willingly.
2. The sample was representative of the general population of educators who held teaching certificates from the MODESE.

Summary

In March of 2020, school districts throughout Missouri were shuttered due to the COVID-19 pandemic (Schremp Hahn, 2020). The students, parents, faculty, and administration of Missouri Middle School found themselves making an abrupt transition from seated, in-person learning to fully remote learning. As it was unclear how long remote learning would remain the primary delivery system for teaching and learning, most instructional efforts during the shutdown were focused on mitigating learning loss

instead of imparting new knowledge (Patrick & Erickson, 2020, p. 2). Learning loss, commonly known as the summer slide (Webber-Bey, 2019), has been oft-researched from a variety of perspectives (Kuhfeld, 2019; McEachin et al., 2018; Pitcock, 2018; Quinn & Polikoff, 2017; von Hippel, 2019) and is widely believed to be attributed to what has become known as the faucet theory (Entwisle et al., 2001; Pitcock, 2018).

The faucet theory is predicated on the belief that educational resources (access to teachers, learning materials, and an environment conducive to learning) can be conceptualized as fluids flowing from a faucet (Entwisle et al., 2001; Pitcock, 2018). When school is out, these resources slow, or even stop flowing, as equitably as when school is in-session (Pitcock, 2018; Quinn & Polikoff, 2017). During periods of inequitable access to resources, achievement gaps grow (Quinn & Polikoff, 2017).

The majority of studies focusing on the summer slide phenomenon center on summer break; research on school responses to the COVID-19 pandemic has not yet been released. Therefore, the purpose of the case study was to assess Missouri Middle School's response to the COVID-19 shutdown and pivot to remote learning from the parent, teacher, and principal perspective.

To provide a backdrop and context for the study, Chapter Two includes a review of current literature featuring an explanation of the theoretical framework underpinning this research and a discussion of historical and contemporary research into summer learning loss and the achievement gap. Next, potential reasons for summer learning loss are explored, focusing on the impact of summer break and access to educational resources. Chapter Two concludes with an examination of the potential impact of the COVID-19 pandemic on learning loss, the central topic of interest of the current study.

Chapter Two: Review of Literature

On March 17, 2020, Missouri School District's administration closed the doors to in-person, on-campus learning until at least April 1, 2020, in a pre-emptive response to the rising number of COVID-19 cases in the area. Soon after, on March 21, 2020, Missouri Governor Mike Parson ordered schools to temporarily close (Patrick & Erickson, 2020, para. 1), followed shortly by a ban on gatherings of more than 10 individuals until April 6, 2020 (Schremp Hahn, 2020, para. 1). Then, on April 9, 2020, Governor Parson ordered all Missouri schools to remain closed for the remainder of the 2019–2020 academic year (Riley, 2020, para. 1). The rapidly changing landscape forced the administration and staff of Missouri Middle School to scramble to provide remote learning opportunities for students and support resources for parents, with little warning or preparation.

The purpose of this case study was to conduct a metaphorical autopsy on the response to this sudden closure by Missouri Middle School's certificated teachers and building principal through the perceptions of parents, teachers, and the principal involved. Furthermore, the overarching goal of this case study was to analyze the perceptions with the goal of informing a more educationally effective response in the event of a future prolonged shutdown. With COVID-19 continuing to spread and mutate into new variants (Centers for Disease Control and Prevention [CDC], 2021b) at the time of this study, especially among the unvaccinated (Mandavilli & Mueller, 2021), Governor Mike Parson offered financial incentives to residents to encourage vaccination due to low vaccination rates (Williams, 2021). The potential for another extended closure certainly

existed; therefore, finding opportunities for improvement from the initial response remained an important exercise.

The COVID-19 shutdown was unprecedented in both its duration and rapid onset (Williams, 2020). However, school districts are no strangers to extended breaks, as summer break is, by definition, an extended break (Pedersen, 2012). The research reviewed in this chapter is focused primarily on this annual epoch on the educational calendar, as the data can arguably be extrapolated and applied to closures due to COVID-19.

The purpose of this literature review is to provide an understanding of the impact of extended school closures on parents, students, and teachers, beginning initially with an exploration of the theoretical framework underpinning those effects. The subsequent section adds to that foundation with a summary and discussion of prior research and an analysis of the educational impact due to closures over summer break from a historical and contemporary perspective. With those foundational pieces in place, the potential reasons for summer learning loss are discussed. Finally, the chapter concludes with the potential impact of COVID-19 on learning loss, as postulated by researchers (Kuhfeld et al., 2020).

Theoretical Framework

In the fall of 1982, the Beginning School Study, or BSS, began with 790 randomly selected participants from 20 Baltimore, Maryland, public elementary schools (Alexander et al., 2007b, p. 16; von Hippel, 2019, p. 10). The BSS was a long-term, longitudinal study whose participants were tracked from first grade through the age of 22, using a variety of data points ranging from standardized test scores in reading and math

to student and family demographic data based on interviews, questionnaires, and school records (Alexander et al., 2007b, p. 17). To summarize, the researchers found comparable gains in the academic performance of all elementary children between the fall and spring of first grade, no matter their socio-economic status (SES) (Alexander et al., 2007b). However, during the summer months, those students with a lower SES declined in performance while their higher-SES counterparts realized gains (Alexander et al., 2007b). Once back in school, gains between the two groups once again normalized until the next summer break, resulting in an ever-widening achievement gap between poorer and richer children that perpetually increased year after year (Alexander et al., 2007b).

Through analysis of that research, Entwisle et al. (2001) coined the term "faucet theory" to describe and understand what the research data were showing. In short, educational resources flow to public school students, regardless of SES, equally during the school year (Entwisle et al., 2001; Pitcock, 2018). However, when school is dismissed for summer, those resources continue to flow in higher-SES households but slow down or cease completely in lower-SES households, resulting in observed achievement gaps (Entwisle et al., 2001; Pitcock, 2018).

A couple of components of Alexander et al.'s (20017a) research are linked to, inform, and lend validity to this case study. First, Alexander et al. (2007a) isolated summer break as a major event in the educational progress of students, regardless of SES. The break in formal education has a negative impact on poorer students, a positive impact on wealthier students, and a negligible impact on middle-class students (Alexander et al., 2007a; Cooper, 2003). It could be argued extended gaps in formal education, regardless of their genesis, play a role in academic achievement and development (Cooper, 2003). It

is not an intellectual stretch to equate summer vacation, a break from formal education and access to an "on" faucet, with a break caused by unplanned events like natural disasters, armed conflict, or the COVID-19 pandemic.

Second, the researchers did not rely solely on academic achievement to reach their conclusions (Alexander et al., 2007a; von Hippel & Hamrock, 2019). Interviews and questionnaires were used to provide context to students' real-world experiences while at home, which provided a much more vivid picture of what differences exist among the various SES strata than raw demographic data could provide in isolation (Alexander et al., 2007a). Particularly, the use of open-ended interview questions and open-ended responses allowed participants to provide their perspectives without the constrains of having to choose from researcher-created options (Creswell, 2018). Therefore, the faucet theory offered a suitable lens through which to view this case study.

Historical Research into Summer Learning Loss and the Achievement Gap

The concept of a summer vacation from school did not become widely implemented until the late 1800s (Pedersen, 2012). Prior to 1890, agrarian and rural communities would organize breaks around fall harvests, while students in urban schools were often in class for 11 months (Pedersen, 2012, p. 56). It was not until around 1900 that the traditional 180-day calendar became widely implemented (Pedersen, 2012, p. 57). Summer learning loss is not a recent phenomenon (Donachie, 2015).

The very purpose and nature of research are to build upon prior and future studies and experiments (Wilcox Brooks et al., 2019). Research into the perceived impact of summer break can be traced back over 100 years to a study conducted by White (1906) at the State Normal School in New Paltz, New York. Subsequent studies exploring the

observed and perceived achievement gaps due to summer breaks continued to follow this trend of ever-expanding research (Atteberry & McEachin, 2020; Eckland & Heyns, 1980; Kuhfeld, 2019; Kuhfeld et al., 2020; McEachin et al., 2018; Pitcock, 2018; Quinn & Polikoff, 2017; von Hippel, 2019).

Early Research

The earliest example of research concerning summer learning loss was conducted in 1906 by William White (White, 1906; Pitcock, 2018). White (1906) postulated the question, "How much arithmetic does a pupil forget in a summer vacation?" (p. 185). White's (1906) research design involved assessing students at the end of the year in June, reassessing those same students upon return in September using the same test, then comparing and analyzing the results. Going a step further, White (1906) proceeded to reteach the content and reassessed his students once again, comparing the June results to the early September and late September results. While the focus of this study was on an undeniably very small subset of students (of the 12 initial participants in June, only eight returned in September), White's (1906) methodology, conclusions, and recommendations could be applied to nearly any classroom in any school district (p. 185). Suggestions and observations such as "Review after vacation yields good results" and "No one form of drill is sufficient" are still applicable today (White, 1906, p. 188). This latter point was central to the premise of this case study. Though the scope of this study was small and focused on a single locale, the information produced may potentially be beneficial when applied to other buildings and in other districts (Kuhfeld et al., 2020).

Contemporary Research

Contemporary research into summer learning loss fundamentally began with two landmark studies: one by Barbara Heyns in 1978 (Eckland & Heyns, 1980) and another first conducted by Entwisle and Alexander in 1992 (Alexander et al., 2017a). Both studies involved participants from one major city in the United States (Atteberry & McEachin, 2020). However, both studies would provide the foundation for subsequent, and progressively more expansive, studies (Atteberry & McEachin, 2020).

The Heyns study followed approximately 3,000 sixth and seventh graders from 42 schools in the Atlanta public school system through two school years (1971–1972), including the summer sessions in-between (Atteberry & McEachin, 2020; Eckland & Heyns, 1980). The significance of the Heyns study was two-fold; her study was the first to separate measures of growth (or regression) during school from those same measures during summer break, essentially isolating the impact of formal schooling on academic gains (Eckland & Heyns, 1980). Additionally, the Atlanta study was the first to include data on the effects of SES and race during school and during summer break (Eckland & Heyns, 1980). The results of the Atlanta study suggested schools are equalizers, indicating overall improvement in student achievement during the school year, but minimal gains (or even some regression) during the summer months, particularly among students from lower-income or minority households (Atteberry & McEachin, 2020; Eckland & Heyns, 1980; Min, 2020).

Like the Heyns study, the Baltimore School Study (BSS) was a longitudinal study to track research participants from first grade through fourth grade (Alexander et al., 2007a). Also, like the Atlanta study, participants were selected from a single school

district within a major American city, Baltimore (Alexander et al., 2007a). However, there were differences between the two studies, particularly in terms of scope and size (Atteberry & McEachin, 2020). The BSS included approximately 750 students enrolled across 20 different schools within the district and initially spanned five years, from 1982–1987 (Atteberry & McEachin, 2020, p. 245). In another departure from the Atlanta study, researchers continued to track study participants beyond school and into adulthood, discovering summer learning experiences were predictive of future life events such as high school graduation and college admission (Alexander et al., 2007a; Atteberry & McEachin, 2020). While the data generated from these studies have informed countless subsequent studies and analyses (Kuhfeld, 2019; McEachin et al., 2018; Pitcock, 2018; Quinn & Polikoff, 2017; von Hippel, 2019), the data collected, particularly the demographic and rich perceptual data produced from questionnaires and interviews, were limited to two major metropolitan American cities (Alexander et al., 2007a; Atteberry & McEachin, 2020).

The Heyns and BSS studies were conducted during a time when, according to *A Nation at Risk: The Imperative for Educational Reform*, "…the public perception that something is seriously remiss in our educational system" (United States National Commission on Excellence in Education, 1983, p. 1). Furthermore, this report highlighted the need for a shift from previously localized research to a more national focus on broad education reform (Galway, 2020; Park, 2004). Perhaps most importantly, *A Nation at Risk* framed education reform in terms of national security and American economic prosperity (Galway, 2020; Park, 2004; United States National Commission on Excellence in Education, 1983). The report would ultimately become the impetus for future

educational reform efforts, including the study of achievement gaps and educational pedagogy, such as No Child Left Behind and the Every Student Succeeds Act (Galway, 2020).

The Early Childhood Longitudinal Study (ECLS-K), sponsored by the National Center for Education Statistics (NCES), expanded the scope of research initiated by the BSS by including students from across the United States (Najarian et al., 2019). The ECLS-K:2011 was the third iteration, with the original cohort beginning with the kindergarten class of 1998–99 (Najarian et al., 2019, p. 2). The ECLS followed a similar model as the BSS, especially as it pertained to the collection of qualitative data regarding experiences, personal learning, and growth (Najarian et al., 2019). The primary usefulness of the ECLS-K study is the data represent a national sample; an attribute not shared with many other studies regardless of sample size (Atteberry & McEachin, 2020).

Researchers for the Northwest Evaluation Association (NWEA) have also conducted long-range studies of student performance based on their own proprietary assessments, the Measures of Academic Progress, or MAP (Hegedus, 2018). In an attempt to project the potential impact of COVID-19 on students, a recent NWEA study used MAP assessment data from five million students ranging from third to eighth grade, representing approximately 22% of the national student population (Kuhfeld et al., 2020, p. 4). Despite the seemingly national scope, the data were not a representative sample, as the MAP was not administered in every school, and the NWEA studies lacked the qualitative context provided by the Atlanta, BSS, and ECLS studies (Kuhfeld & Tarasawa, 2020a).

It is important to note a general lack of consensus among researchers regarding the direct causes and/or prescriptions for summer learning loss (Kuhfeld, 2019; von Hippel, 2019). Several studies seem to indicate a link between summer break (or other extended closures) and an increase in the achievement gap, particularly when compared along SES lines (Alexander et al., 2007a; Eckland & Heyns, 1980; von Hippel et al., 2018). Other researchers found no significant link (Rambo-Hernandez & McCoach, 2014) or mixed results (Quinn & Polikoff, 2017; von Hippel & Hamrock, 2019). The lack of agreement, however, is a positive attribute when considering the purpose of this study. If no over-arching cause of or cure for summer learning loss can be definitively ascertained, then perhaps a more localized, targeted approach would be more useful, which was a primary component of this study.

Potential Reasons for Extended Closure Learning Loss

Any targeted, granular research or discussion regarding summer learning loss would be incomplete without first discussing potential factors that contribute to the loss. Two leading reasons, summer break and access to resources during that break, are intimately related to each other (Cooper et al., 1996). Additionally, other extended breaks in student learning due to natural disaster, disease, and violence are worth examining for their potential impacts on student learning (Moss & Harmey, 2020; Sawchuk, 2020; Weiland, 2019).

Summer Break

The implementation of summer break in American public education dates back over 200 years to a time when the majority of the population lived in agrarian areas, and facilities lacked resources, such as climate control, to facilitate learning during the

summer months (Pedersen, 2012, p. 57). Modern society, however, looks much different than it did in the late-19th century, with only 3% of the population earning a living through agricultural means, compared to the approximately 85% who did so when the nine-month, 180-day school calendar was essentially standardized circa 1900 (Cooper, 2003, p. 2). Currently, most public-school students experience up to a three-month break (Cooper, 2003).

By contrast, summer break for students in the United Kingdom lasts from 6–7 weeks (Shinwell & Defeyter, 2017, p. 2), while South Korean students enjoy a summer break of only 2–3 weeks (Ryu et al., 2020, p. 832). During the latter part of the 20th century, several inquiries were made into the concept of time as it pertains to public education and student learning (Gabrieli & Beaudoin, 2020). Through government reports, such as *A Nation at Risk* in 1983 to *Prisoners of Time*, first printed in 1994 and reprinted in 2005, researchers have identified the amount of time spent in school as a major contributor to the decline of American student performance when compared to students from other countries (Gabrieli & Beaudoin, 2020, p. 13).

Access to Resources

Entwisle et al. (2001) and their faucet theory provided a deeper context and understanding of the time resource identified in prior studies, by highlighting the inherent resource gap that exists between students from low-SES households and those from middle and upper-SES households. Students from richer families are more likely to engage in summer enrichment activities such as day camps, vacations, and museum visits than their poorer counterparts (Redfield et al., 2018). However, simply providing students

access to educational tools outside of school does not automatically close the learning gap (Celano & Neuman, 2008).

Poorer children gravitate toward reading resources with more pictures and less text than their wealthier peers, and lower-SES students tend to use technology for entertainment rather than information-gathering purposes (Celano & Neuman, 2008). In response, many districts began experimenting with extended school year calendars; the number of schools implementing such initiatives increased by 26% between 2007 and 2012 (DeNisco, 2015, p. 16). However, the results are still unclear as to how successful those endeavors have been in closing the achievement gap (Kuhfield, 2019), indicating the need for further research and inquiry.

As schools began to re-open during the 2020–21 school year, disparities in access to in-person instruction began to emerge, particularly along race, age, and geographical lines (Oster et al., 2021). For example, between January 2021 and April 2021, 74.6% of non-Hispanic White students had access to full-time, in-person instruction compared to 63.4% of Black students (Oster et al., 2021, p. 954). Latinx and Asian students were enrolled in full-time, in-person instruction at even lower rates (Office for Civil Rights, 2021).

The natural alternative to in-person learning is digital learning, which necessitates access to both a digital device and to the Internet (Garcia & Weiss, 2020). Overall, over 15% of all American homes with school-age children do not have access to broadband Internet, with 33% of poor families lacking access (Puckett & Rafalow, 2020, p. 35). Similarly, poor students are less likely to have access to a personal computer or a tablet compared to their non-poor contemporaries (Garcia et al., 2020). One analysis of K–12

students in the United Stated determined 40% of low-income students received no remote instruction compared to only 10% of White students (Dorn et al., 2020, Exhibit 3). Given these resource gaps, it is not surprising that respondents in poor households reported more-frequent use of paper materials sent home than did respondents from non-poor households (McElrath, 2020). In addition, researchers have suggested a need for more teacher training in the effective use and delivery of digital content (Garcia & Weiss, 2020; Puckett & Rafalow, 2020), as well as more instruction for students on the competent use of digital resources (Puckett & Rafalow, 2020).

COVID-19

The first reports of a new respiratory illness came out of the city of Wuhan, China in December 2019 (Liu et al., 2020) and were subsequently reported to the World Health Organization (WHO) later that month (Lango, 2020). Wuhan's wet markets, where humans come into close contact with a variety of live animals in dangerously unsanitary conditions, are considered "amplification zones" for the evolution of infectious disease (Platto et al., 2021, p. 21). By the end of January 2020, the WHO declared the outbreak a Public Health Emergency of International Concern (PHEIC), and the first case of human-to-human spread of the disease reported in the United States occurred in February 2020 (Lango, 2020). The illness was officially named COVID-19 (coronavirus disease 2019) that same month and was assigned the official identifier of SARS-CoV-2 by the Committee on Taxonomy of Viruses (Liu et al., 2020). The WHO declared COVID-19 a pandemic on March 11, 2020 (Lango, 2020; Liu et al., 2020), the fifth pandemic in recorded history along with the Spanish flu (1918), Asian flu (1957), Hong Kong flu (1968), and Pandemic flu (2009) (Liu et al., 2020).

In response to the developing pandemic, governments began suspending in-person instruction, impacting as much as 95% of the global student population and resulting in "the largest disruption to education in history" (Engzell et al., 2021, p. 1). Schools did not simply close; instead, they transitioned to virtual learning (Oster et al., 2021). Missouri was already set up for large-scale virtual instruction with the implementation of the Missouri Course Access and Virtual School Program, established in 2018 (MODESE, n.d.). As medical recommendations continued to evolve, schools began to adjust accordingly (Dawson et al., 2021). Schools resuming in-person learning incorporated numerous mitigation strategies, including physical distancing, face coverings for students and staff, and contact tracing (Dawson et al., 2021). In addition, many schools incorporated hybrid learning as an added option, splitting the difference between fully virtual and in-person instruction (CDC, 2020).

Despite these mitigation efforts, some evidence suggested a hesitance to return to in-person public school instruction, as PK–12 enrollment in public schools decreased by 3.2% in the fall of 2020 (Bernhard, 2020b, para. 5). A full 29% of parents indicated they would continue with virtual education indefinitely, further extending the disruption to education (Kamenetz, 2021, para. 16). The emergency use authorization of vaccines for adults began in December 2020 with the Pfizer-BioNTech and Moderna vaccines, followed by the Johnson & Johnson vaccine (Terry, 2021). In Missouri, teachers became eligible for vaccination on March 15, 2021 (Hirsch, 2021). However, Missouri ranked among the lowest in the country in vaccination percentage leading up to the start of the 2021 school year while hospitalizations due to the Delta variant of COVID-19 were increasing (Mandavilli & Mueller, 2021). At the time of this study, available vaccines

were not approved or developed for students under the age of 12 (CDC, 2021a), putting local Missouri schools at risk for another extended closure.

Other Natural and Man-Made Disasters

Disasters, both natural and man-made, provide another context through which to view learning loss (Moss & Harmey, 2020; Sawchuk, 2020; Weiland, 2019). Unlike other extended school closures like Christmas vacation and summer break, sudden disruptions to the educational system deprive students and teachers of critical curricular planning, review, wrap-up, and preparation that typically takes place prior to expected closures (Weiland, 2019). The onset of COVID-19 may not have been sudden, but the resulting shutdown was swift and widespread (Riley, 2020). Natural disasters and violent conflict have historically occurred in similar fashion, causing sudden and wide-spread disruptions to standardized education (Moss & Harmey, 2020). Furthermore, these disruptions tend to impact lower-income populations disproportionately (Weiland, 2019).

Hurricane Katrina was the most-recent natural disaster in the United States to result in a sudden, long-term closure of the local school system (Hill, 2020) and the displacement of approximately 372,000 students (Franklin-Wallis, 2020, para. 1). Research on the academic impact on the students affected by the disaster indicated a decline of 0.10 standard deviation the year following the event (Kuhfeld et al., 2020, p. 7). Data from research following a massive earthquake in Pakistan in 2005 indicated students impacted by the event scored 1.5 grade levels lower than their unaffected contemporaries (Andrabi et al., 2020, p. 5). Researchers examining the academic impact on children following the Black Saturday brushfires in Australia found a negative impact on reading and math that did not begin to manifest until up to four years following the

event (Gibbs et al., 2019). The Ebola outbreak in Africa closed schools for five million students for eight months (Franklin-Wallis, 2020, para. 6) and has led to a widening gap in academic achievement, particularly among females (Smith-Spark, 2021).

Not all school closures are due to natural disasters. Researchers determined German and Austrian students who were school-aged during World War II earned significantly less money later in life, most likely due to the academic impact of missing school (Smith-Spark, 2021). Children impacted by the Bosnian conflict required tutoring and other specialized interventions to get caught up academically (Smith-Spark, 2021). While the event did not result in school closures, the Beltway Sniper attacks in 2002 caused a 2% to 5% drop in math and reading proficiency, similar to the impact of 10 unexpected snow days (Gershenson & Tekin, 2018, p. 516). Regardless of the reasons for extended closure, even short-term disruptions can have long-term impacts (Sawchuk, 2020).

Potential Impact of COVID-19 on Learning Loss

Compared to the traditional summer break, students experienced a six-month gap between seated, in-person learning opportunities from the truncated conclusion of the 2019–2020 academic year to the beginning of the 2020–2021 school year (Kuhfeld et al., 2020). Preliminary estimates, conducted by researchers for NWEA, postulated learning losses as much as 30% in reading and 50% or more in mathematics, the latter of which constitutes almost a full year of learning in comparison to the losses observed over a typical summer break (Kuhfield & Tarasawa, 2020b, p. 2). While the potential implications to student learning loss stemming from the COVID-19 pandemic are not yet known, other incidents, both natural and man-made, have resulted in prolonged school

closures that have been studied. Examinations of the impact on students from the 1916 polio outbreak in the United States, teacher strikes in Argentina in the 1980s, and severe flooding in Thailand in 2011 indicated a detrimental effect on learning and future earnings, particularly on elementary-aged students (Aldeman, 2020, para. 6). Some researchers have predicted that just one year of lost education can equate to a reduction of lifetime earnings by as much as 10% (Reimers & Schleicher, 2020, p. 4).

In response, many districts attempted to mitigate the potential for learning loss due to the Coronavirus pandemic by implementing remote learning (Schultz & DeMers, 2020). However, this abrupt shift in pedagogy and delivery was not universally seamless or effective for students, parents, and educators (Schultz & DeMers, 2020). In many cases, stakeholders were given as little as 24 hours' notice to plan, prepare, and execute a remote learning plan (Midcalf & Boatwright, 2020, p. 24). In addition, equity issues plagued many districts' responses, as access to the Internet and Internet-capable devices among poor and rural communities lagged behind their more affluent and urban counterparts (Goldstein, 2020; Strauss, 2020).

Summary

Summer break, and by extension any gap in traditional seated education, results in the reduction or elimination of access to educational resources and opportunities, a circumstance described as the faucet theory (Entwisle et al., 2001). Summer breaks have been a major component of American education dating back to the 19th century (Pedersen, 2012), and their potential impacts on student learning have been the focus of study for nearly as long (Donachie, 2015; White, 1906). More recently, much larger and more comprehensive studies have been conducted to better understand the magnitude and

potential causes of summer learning loss (Alexander et al., 2007a; Hegedus, 2018; Kuhfeld & Tarasawa, 2020b; Najarian et al., 2019).

Despite over a century of prior and ongoing research, a consensus regarding the causes and cures of summer slide has yet to be reached (Kuhfeld, 2019; von Hippel, 2019). The onset of the COVID-19 pandemic has the potential to exacerbate already present issues related to access to educational resources, especially along SES lines (Celano & Neuman, 2008; Entwisle et al., 2001). Though remote learning has been widely implemented to mitigate these issues, this strategy continues to be plagued with equity and efficacy issues (Goldstein, 2020; Schultz & DeMers, 2020).

Chapter Three, the methodology section, features an overview of the problem, a recap of the purpose of the study, a review of the research questions, and a detailed description of the research design. A description of the instrumentation, including a discussion of reliability and validity, follows. Finally, details regarding data collection procedures, as well as the proposed data analysis and ethical considerations, are provided.

Chapter Three: Methodology

In this chapter, the methodology used to examine the response of Missouri Middle School to the COVID-19 shutdown is explained. The problem and purpose of the study are reviewed, and the research questions, population, and sample are addressed. A description of the instrumentation utilized for the study follows, including a discussion regarding reliability and validity. Finally, a description of the plan for data collection procedures and subsequent data analysis is presented, including an explanation of the ethical considerations considered as part of this study.

Problem and Purpose Overview

The summer slide refers to regression of student knowledge, which takes place between the end of a school year and the beginning of the next (Webber-Bey, 2019). Summer slide has been a known phenomenon since the early 1900s (White, 1906). Research into the potential causes for this regression has been conducted in various forms throughout the past century (von Hippel, 2019). The typical summer break lasts approximately six weeks and is a scheduled event looked forward to and planned for by students, parents, teachers, principals, and even businesses and communities (Cooper, 2003).

The majority of existing research on summer learning loss has been focused primarily on gaps in seated, in-person learning due to summer break (Kuhfeld, 2019; McEachin et al., 2018; Pitcock, 2018; Quinn & Polikoff, 2017; von Hippel, 2019). The COVID-19 pandemic, which began in the United States in January of 2020 (Ghinai et al., 2020), eventually forced the closing of all Missouri schools on March 21, 2020, and rendered in-person classroom instruction impossible for the remainder of the 2019–2020

school year (Patrick & Erickson, 2020, p. 2). Therefore, the gap between the end of the 2019–2020 school year and the beginning of the 2020–2021 school year became approximately 20 weeks instead of the typical six.

The purpose of this case study was to examine the opinions and perceptions of parents, teachers, and the principal at Missouri Middle School regarding the school's response to the summer slide. The specific areas examined include instruction, communication, and access to technology. The case study was conducted to determine the best strategies to implement in the future to prevent learning loss due to an extended school closure at Missouri Middle School.

Research Questions and Hypotheses

The following research questions and hypotheses guided the study:

1. What are the opinions of parents, teachers, and the principal regarding the strategies implemented at a rural middle school to prevent learning loss during an extended school closure in the areas of instruction, communication, and access to technology?
2. In the opinion of parents, teachers, and the principal at a rural middle school, what strategies would better prevent learning loss during an extended school closure in the areas of instruction, communication, and access to technology?
3. What is the significant difference between the perceptions of parents and teachers regarding the strategies implemented at a rural middle school to prevent learning loss during an extended school closure in the areas of instruction, communication, and access to technology?

$H3_0$: There is no significant difference between the perceptions of parents and teachers regarding the strategies of a rural middle school to prevent learning loss during an extended school closure in the areas of instruction, communication, and access to technology.

$H3_a$: There is a significant difference between the perceptions of parents and teachers regarding the strategies of a rural middle school to prevent learning loss during an extended school closure in the areas of instruction, communication, and access to technology.

4. What is the significant difference between the perceptions of teachers and the principal regarding the strategies at a rural middle school to prevent learning loss during an extended school closure in the areas of instruction, communication, and access to technology?

$H4_0$: There is no significant difference between the perceptions of teachers and the principal regarding the strategies of a rural middle school to prevent learning loss during an extended school closure in the areas of instruction, communication, and access to technology.

$H4_a$: There is a significant difference between the perceptions of teachers and the principal regarding the strategies of a rural middle school to prevent learning loss during an extended school closure in the areas of instruction, communication, and access to technology.

Research Design

The research design for the study was mixed methods. According to Guetterman et al. (2019):

> Mixed methods research is defined as the collection, analysis, and integration of both quantitative data… and qualitative data… to provide a more comprehensive understanding of a research problem than might be obtained through quantitative or qualitative research alone. (p. 1)

The implementation of a mixed-methods approach provides added qualitative context to the information gleaned through quantitative methods, allowing for a more robust and more complete understanding of the topic under examination (Bluman, 2017; Guetterman et al., 2019).

Qualitative and quantitative research practices have their geneses in vastly different paradigms (Öztürk & Şahin, 2019). Quantitative research practices are based on a positivist paradigm, which is "…the idea that if there is something, there is an amount of it, and that amount can be measured" (Öztürk & Şahin, 2019, p. 301). Those values, or variables, can either be discrete or continuous and ranked according to their objective values (Bluman, 2017). Since the values are objective, and not prone to subjective interpretation, the data generated will not differ between researchers (Öztürk & Şahin, 2019). Conversely, qualitative research methodology is rooted in a constructivist paradigm where generalization of results is impossible because the motives, opinions, and perspectives of each participant and researcher are subjective (Öztürk & Şahin, 2019). Qualitative data are based on subjective classifications determined by the researcher (Bluman, 2017).

Mixed-methods research practices are striated into four main types: convergent parallel design, explanatory sequential design, exploratory sequential design, and embedded design (Creswell, 2018). The purpose of the convergent parallel design is to

collect both qualitative and quantitative data sets simultaneously, combine the results, then analyze the results, with the idea that weaknesses in one data set are mitigated by the strengths of the other (Öztürk & Şahin, 2019). Explanatory sequential design is used when simultaneous data collection is not possible; therefore, a linear approach must be implemented (Öztürk & Şahin, 2019). In this instance, of more importance is the quantitative data, so analysis of the quantitative data is given preference over qualitative data and analysis, with the results of each analysis reported separately (Bluman, 2017; Öztürk & Şahin, 2019). Conversely, researchers implementing an exploratory sequential design place priority on qualitative data collection and analysis over quantitative (Öztürk & Şahin, 2019). Finally, with the embedded design, researchers collect and analyze qualitative and quantitative data, either simultaneously or sequentially, then use the results of one to support the findings from the other (Öztürk & Şahin, 2019).

For the purposes of this study, the embedded design mixed method was used (Öztürk & Şahin, 2019). First, quantitative data were generated from an online survey. Then, qualitative data were generated from follow-up interviews, which provided context and support to the quantitative survey data. The two sets of data were then combined, analyzed, and interpreted.

Population and Sample

Bluman (2017) stated, “A population consists of all subjects (human or otherwise) that are being studied” (p. 4). The population for this study consisted of the parents, certificated teachers, and building-level principals at the Missouri School District. At the time of this study, there were 745 families with students enrolled in the Missouri School District, resulting in a student population of 1,170 (District Database, 2020). Educating

these students were 142 certificated staff (MODESE, 2019) and five building-level principals split unevenly across four buildings and three campuses (District Database, 2020). The pool of potential parent participants was sourced using the school's student information system. There were 241 primary parents listed for middle school students (District Database, 2020). The pool of potential teacher participants was sourced using the school's payroll system. There were 20 certified teachers employed at Missouri Middle School (District Database, 2020). The pool of potential principal participants was sourced using the school's payroll system. There was one principal employed by Missouri Middle School.

A sample, according to Bluman (2017), "is a group of subjects selected from a population" (p. 4). The samples for this study were selected from the population of parents and teachers at Missouri Middle School. All participants had an affiliation with the school. Parent participants included anyone who had at least one student enrolled in the school during the 2019–2020 school year. Teacher participants included any certified teacher employed at the school during both the 2019–2020 and the 2020–2021 school years. The principal was employed at the school during both the 2019–2020 and the 2020–2021 school years.

Deemed appropriate for this study was a purposive sampling method. This method is defined as "a sampling technique in which [the] researcher relies on his or her own judgment when choosing members of [a] population to participate in the study" (Dudovskiy, n.d., para. 1). Since the case study focused on instruction, communication, and access to technology at the middle school, these parents, teachers, and the principal were the most suited to respond to the survey and participate in the interviews. For the

qualitative phase of the study, the first four parents and the first four teachers who volunteered to participate in interviews comprised the sample. This method is termed convenience sampling and is appropriate when participants are readily available (Bluman, 2017). Since there was only one principal at the middle school, a purposive sampling method was fitting.

Instrumentation

The instruments for the quantitative aspect of the study consisted of two sets of online surveys delivered via *Qualtrics*, one designed for parents and the other designed for teachers and the principal. The contents of the survey instruments (see Appendices A and B) were modified versions, used with permission, of those created by Dr. Titinesha Llewellyn for her 2019 dissertation, *A Program Evaluation of Student and Teacher Perceptions of an Online Edgenuity High School Course Program in an Urban High School*. Modifications to the original surveys were informed by the results of the needs assessment conducted in June 2020.

The instruments for the qualitative component of the study included three sets of interview questions, one for parent participants, one for teacher participants, and one for the principal, administered via phone call or video meeting conference. The interview questions (see Appendices C, D, and E) were modified versions, used with permission, of those created by Llewellyn (2019). Modifications to the original interview questions were informed by the results of the needs assessment conducted in June 2020.

Reliability

Reliability is a measure of the consistency of responses "…from one administration of an instrument to another and from one set of items to another"

(Fraenkel et al., 2018, p. 155). Since the surveys and interviews were one-time applications for the purposes of this study, external consistency measures such as the test-retest method and equivalent forms method were not appropriate for calculating reliability (Fraenkel et al., 2018).

Validity

The validity of a study refers to the "…the degree to which evidence supports any inferences a researcher makes based on the data he or she collects using a particular instrument" (Fraenkel et al., 2018, p. 148). Specifically, survey and interview instruments were tested for content-related validity via field tests, which involved the collection of feedback from experts not participating in the research regarding their perceptions of the appropriateness of each question (University of Phoenix, 2015). The parent surveys and interview questions were field-tested by parents of the Missouri School District who were not candidates for study participation. Likewise, the principal and teacher surveys and interview questions were field-tested by professional educators ineligible for study participation based on the defined population. Information obtained via field testing of the instruments provided face validity (Taherdoost, 2016) and was used to make modifications to the survey and interview questions prior to the actual data collection process (Creswell, 2018).

Data Collection

Two main components made up the procedures for data collection. The first component included quantitative data obtained from parents, teachers, and the principal from the respective survey instruments. The second component consisted of qualitative

information obtained from parent, teacher, and principal interviews. Several steps were required to complete the data collection for both components of the study.

First, Institutional Review Board (IRB) approval was obtained from Lindenwood University (see Appendix F). Approval was also obtained from the superintendent of the study site, the Missouri School District. Specifically, the study took place on the campus of the only middle school building in the Missouri School District. No information was collected for this study prior to IRB and superintendent approval.

Upon IRB approval, the collection of quantitative survey data began. The pool of potential parent participants was sourced using the school's student information system. Letters of recruitment were sent via email to all Missouri Middle School parents, as well as to the school's teachers and principal (see Appendices G and H). Both recruitment letters included information detailing the purpose of the study, the number of participants involved, a summary of the topics addressed by the survey instruments, a brief explanation of how the data would be used and stored, and an explanation of any potential risks to the participants. Research information sheets (see Appendices I and J) accompanied the recruitment letters. Participants indicated their agreement by clicking on an embedded link to the survey. The survey window remained open for 14 days.

The qualitative component of the study involved parent, teacher, and principal interview data. Noted in each recruitment letter, and embedded at the end of the online survey, was an invitation to participate in a follow-up interview via telephone or video conference. Contact information was provided for all volunteers. The qualitative data set included interview information from nine total participants: the first four volunteers from the parent sample, the first four volunteers from the teacher sample, and the building

principal. Volunteers suggested dates and times of convenience to conduct a socially distanced interview, and each participant was sent an interview research information sheet (see Appendices K and L), along with an advanced copy of the interview questions. Upon completion of the interviews, which took place in March 2021, copies of transcripts were sent to participants to verify the validity and reliability of the data.

Data Analysis

The results of the quantitative survey data collected from the parent, teacher, and principal participants were used to determine if a significant difference existed between the perceptions of parents and teachers and if a significant difference existed between the perceptions of teachers and the principal. The participants' responses, which they selected from a five-point Likert-type scale, were assigned a numerical value, with the first response given a value of one and the fifth response given a value of five. A value of three indicated a neutral response on each survey regardless of the question asked.

Then, the questions were grouped into three distinct categories: instruction, communication, and access to technology. Though the Likert-type scale responses were ranked on a continuum of low to high, the precise differences between each rank could not be accurately defined, classifying the data as ordinal (Bhandari, 2020b). Therefore, the responses for each category were summarized using descriptive statistics, specifically the mode, a central tendency measurement of the most commonly occurring value in a dataset (Bhandari, 2020a). Next, the data were assessed for variability, specifically by calculating the range. Combining the range with the mode provided for a more accurate assessment of data variability (Bhandari, 2020c). Statistical significance was calculated using the Mann-Whitney *U* test. Because the data were ordinal and nonparametric, and

the sample size was small, the Mann-Whitney *U* test was an appropriate alternative to a parametric *t*-test (Fraenkel et al., 2018; Sullivan, 2017).

Qualitative data were obtained via the results of the parent, teacher, and principal interviews. Participant responses were grouped into categories and themes using open and axial coding. The open coding procedure allowed for the open-ended responses to be conceptualized, categorized, and ultimately compared (Bluman, 2017; Kaiser & Presmeg, 2019). These categories were then analyzed via axial coding to investigate any correlation between the categories identified via the open coding process (Bluman, 2017; Kaiser & Presmeg, 2019). The responses from the participants provided additional information used to address research questions one and two.

Ethical Considerations

At the time of this study, the researcher was a district-level administrator for the Missouri School District. According to federal regulations, researchers are required to "minimize the possibility of undue influence" (Protection of Human Subjects, 2009, p. 7). As a superior to the teachers and principals at the school, the potential for bias in participant responses during interviews and on surveys existed. To reduce coercion and bias, the specific actions and parameters of the study were clearly defined and articulated to the superintendent in the site permission form and to participants in the letters of participation for parents and teachers/principal.

The study was limited to the opinions and perceptions of the participants, and confidentiality assurances were provided. Survey participation was completely voluntary, as was participation in video/telephone interviews. Interview participation was limited to the first four parent and teacher respondents who volunteered. These participants were

provided a copy of the interview questions prior to the video chat or phone call. The principal had the option to participate in an interview or decline without penalty. A third party was available to follow up if there were any concerns.

Measures were taken to mitigate the potential for personal identification of participants by maintaining a master Excel file with actual participant names, and if necessary, email addresses and phone numbers on a portable external solid-state drive. This drive, when not in use, remained locked in a file cabinet in the researcher's office, preventing any online access. The office door was locked, as well as the outer door to the central office. The only key to personally identifiable information was behind three locked doors and was disconnected from the Internet. The central office was continuously monitored via video surveillance.

The identities of all participants were kept anonymous. Individual names were replaced with pseudonyms when applicable, and all other personal information was de-identified prior to publication. However, as with all research, there is always a possibility of a security breach. All reasonable risks were disclosed via research information sheets for parents, teachers, and principal.

Summary

In this chapter, the statement of the problem of summer learning loss was presented, followed by an examination of the opinions and perceptions of parents, teachers, and a principal regarding Missouri Middle School's response to the 2020 COVID-19 shutdown. Specifically, the elicited opinions and perceptions were categorized into the areas of instruction, communication, and access to technology. The mixed-methods research design was described, including the qualitative and quantitative

components of the study, which featured interview sessions with the participants and data obtained through survey instruments. The population and sample were defined, including an explanation of the instrumentation and a discussion of reliability and validity. The process for data collection was described, as were the procedures for data analysis. Finally, ethical considerations of the study were examined and discussed.

In Chapter Four, an extensive analysis of the case study findings, as well as the results of the data analysis, are reported. Chapter Five concludes with an explanation of conclusions, potential implications, and recommendations for future research.

Chapter Four: Analysis of Data

The COVID-19 pandemic, which began in the United States in January of 2020 (Ghinai et al., 2020), eventually forced the closing of all Missouri schools on March 21, 2020, rendering in-person classroom instruction impossible for the remainder of the 2019–2020 school year (Patrick & Erickson, 2020, p. 2). Prior research into the regression of student knowledge during extended breaks has primarily focused on the gap between the end of the school year in spring and the beginning of the next in fall, commonly known as the summer slide (Webber-Bey, 2019). The typical summer break spans approximately six weeks (Campbell et al., 2019), but the onset of the COVID-19 pandemic resulted in an extended closure of approximately 20 weeks.

The purpose of this case study was to examine the opinions and perceptions of parents, teachers, and the principal at Missouri Middle School regarding the school's response to the COVID-19 extended school closure in the areas of instruction, communication, and access to technology. The two primary goals of the study centered upon four research questions which included quantitative and qualitative components. An embedded mixed-method design was selected as appropriate; the results of one type of data were used to support the findings of the other (Öztürk & Şahin, 2019). The first goal was to determine if a statistically significant difference existed in the perceptions of strategies employed by Missouri Middle School between two sets of groups: parents and teachers and teachers and principal. The second goal was to determine the best strategies to be implemented to prevent learning loss due to future extended school closures at Missouri Middle School.

The qualitative research questions addressed parent, teacher, and principal perceptions of the strategies employed by Missouri Middle School to mitigate learning loss during the COVID-19 extended school closure in the areas of instruction, communication, and access to technology. The quantitative component of the study consisted of parent and teacher volunteers who completed the survey instrument. Missouri Middle School employs one principal who volunteered to participate in a follow-up interview. The design of this study included a convenience sample composed of the first four parents and the first four teachers who volunteered to participate in follow-up interviews.

Demographics

The population of this study consisted of the parents, certificated teachers, and building-level principals of Missouri School District. Only participants who had an affiliation with Missouri School District during the 2019–2020 school year were included in this study. Demographic information for the quantitative component was obtained via Missouri School District's student information system and payroll system (District Database, 2020).

Quantitative

The case study focused on instruction, communication, and access to technology at Missouri Middle School, a component of the larger Missouri School District. Deemed appropriate for this study was a purposive sampling method since the parents, teachers, and principal at Missouri Middle School would be best suited for participation (Dudovskiy, n.d.). At the time of this study, there were 241 primary parents listed for Missouri Middle School students (District Database, 2020). There were 20 certified

teachers and one principal employed at Missouri Middle School (District Database, 2020). Of the 241 primary parents, 47 parents responded to the survey. Of the 20 certified teachers and one principal, 16 responses were recorded.

Qualitative

The qualitative component of the study consisted of parent and teacher volunteers who completed the quantitative survey instrument. Of the 47 parent respondents, four volunteered to participate in a follow-up interview. Of the 16 teacher respondents, four volunteered to participate in a follow-up interview. Missouri Middle School employs one principal who also volunteered to participate in a follow-up interview. The design of this study included a convenience sample composed of the first four parents and the first four teachers who volunteered to participate in follow-up interviews; therefore, no teacher or parent volunteers were excluded from participation in the study.

Data Analysis

Data collection included two main components followed by data analysis. The first component of data collection included quantitative data obtained from parents, teachers, and the principal based on their respective survey instruments. The second component included information obtained from parent, teacher, and principal interviews. The subsequent sections of this chapter include the separate results of the quantitative and qualitative data.

Parent and Teacher Perceptions

Parents and teachers completed a survey to determine their perceptions regarding Missouri Middle School's response to the COVID-19 extended school closure in the areas of instruction, communication, and access to technology. Three survey items

addressed parent and teacher perceptions regarding the level and rigor of instruction during the extended closure, especially when compared to in-class learning. The language in one multi-part survey item was focused on the frequency of teacher-to-student communication, including checking in, assignment feedback, and praise or encouragement. The language in another multi-part survey item addressed student access to devices, home Internet availability, and the quality or reliability of Internet access for educational purposes. Three more multi-part survey items contained language regarding potential improvements to areas of instruction, communication, and access to technology and the perceived benefits of those improvements to the school's response to the extended closure.

Each survey item was presented in the form of a Likert-type scale. Raw data from Qualtrics were downloaded into an Excel spreadsheet where values were assigned to each response. Each item featured a different scale shown in the subsequent tables. Parents and teachers responded to each question regarding their perceptions via the survey instrument.

Survey Item One. In general, how well do you agree with the following statement: "The instruction my students/child received during the extended closure was comparable to the instruction my students received from in-class learning."

Participants were asked to reflect on their perceptions of instruction during the extended closure compared to regular in-class learning. For this question, the Likert-type scale ranged from *strongly agree* to *strongly disagree* with five responses possible and a value assigned to each response (see Table 1).

Table 1

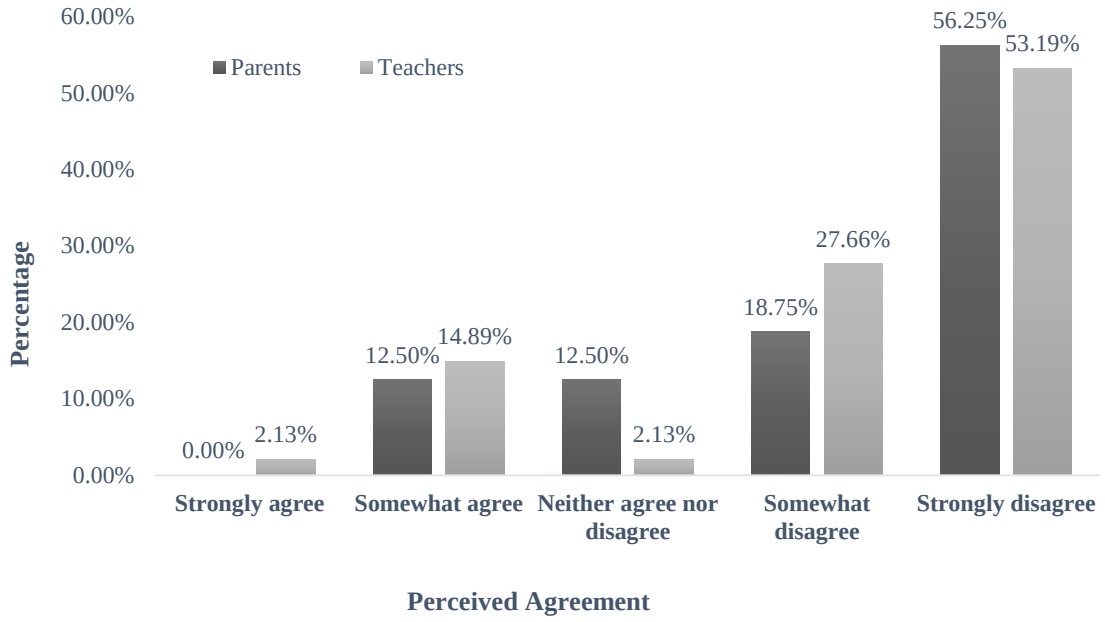
Scale Responses for Parent Survey Item One

Response	Assigned Score
Strongly Agree	1
Somewhat Agree	2
Neither Agree nor Disagree	3
Somewhat Disagree	4
Strongly Disagree	5

The results indicated 80.85% of parents either strongly disagreed or somewhat disagreed that instruction received during the extended closure was comparable to in-class learning, while only 8.51% strongly agreed or somewhat agreed. In comparison, results indicated 75.0% of teachers indicated they strongly disagreed or somewhat disagreed instruction was comparable, while only 12.5% of teachers strongly agreed or somewhat agreed (see Figure 1).

Figure 1

Perceptions Regarding Instruction Received During the Extended Closure Compared to In-Class Instruction



Survey Item Two. In general, compared to in-classroom instruction, the instruction my students/child received during the extended closure was (extremely difficult, somewhat difficult, neither easy nor difficult, somewhat easy, extremely easy).

The participants were asked to reflect on their perceptions of the difficulty of instruction during the extended closure compared to in-class learning. For this question, a Likert-type scale ranged from *extremely difficult* to *extremely easy* with five responses possible and a value assigned to each response (see Table 2).

Table 2

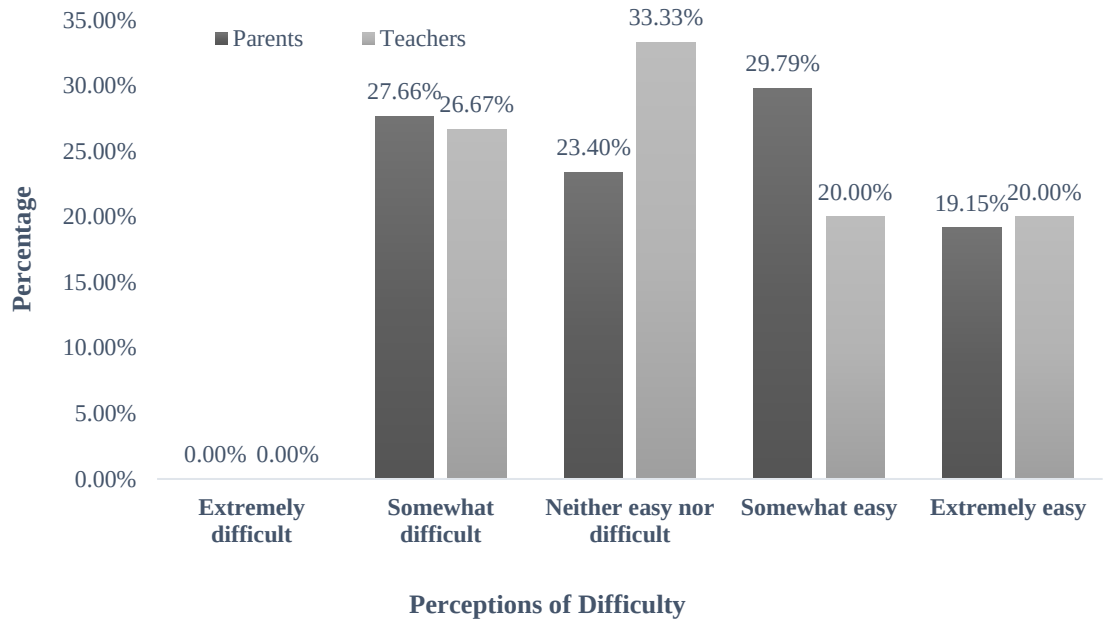
Scale Responses for Parent Survey Item Two

Response	Assigned Score
Extremely Difficult	1
Somewhat Difficult	2
Neither Easy nor Difficult	3
Somewhat Easy	4
Extremely Easy	5

The results indicated 48.94% of parents perceived the extended closure instruction to be extremely easy or somewhat easy compared to in-class learning, while 27.66% found the instruction to be somewhat difficult. In comparison, results indicated 40.0% of teachers reported extended closure instruction was extremely easy or somewhat easy compared to 26.67% of teachers who found extended closure instruction to be somewhat difficult. None of the parents or teachers reported extended closure instruction to be extremely difficult compared to in-class instruction (see Figure 2).

Figure 2

Perceptions Regarding the Difficulty of Instruction Received During the Extended Closure Compared to In-Class Instruction



Survey Item Three. After completing the assignments assigned during the extended closure, I feel my students are _____ for the next school year.

The participants were asked to reflect on their perceptions regarding how prepared students were for the upcoming school year based on the instruction received during the extended closure. For this question, a Likert-type scale ranged from *extremely prepared* to *not prepared at all* with five responses possible and a value assigned to each response (see Table 3).

Table 3

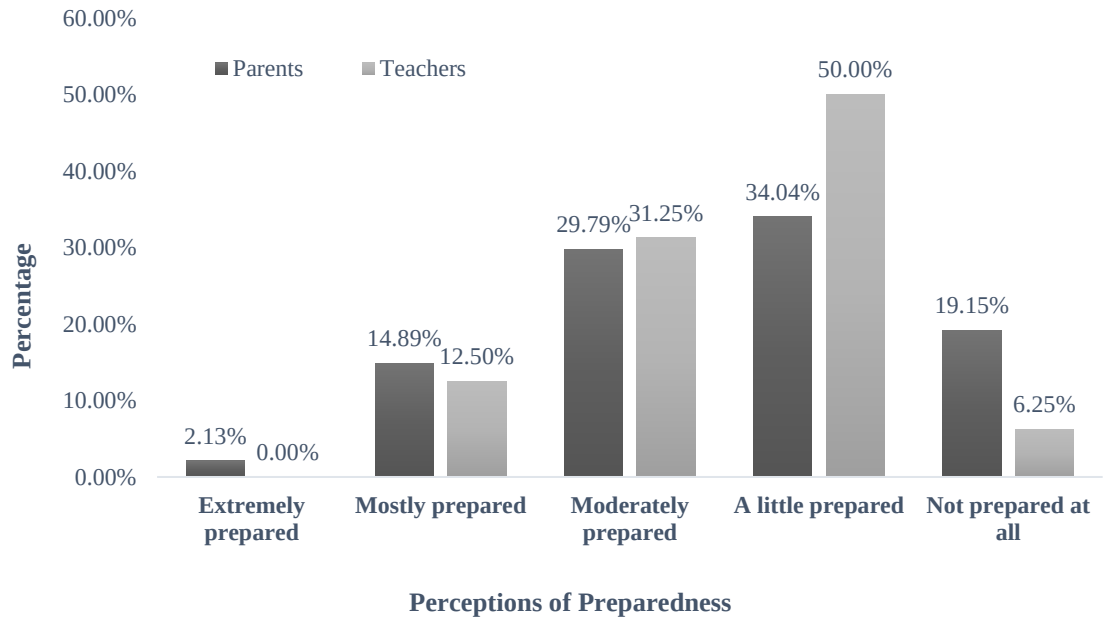
Scale Responses for Parent Survey Item Three

Response	Assigned Score
Extremely Prepared	1
Mostly Prepared	2
Moderately Prepared	3
A Little Prepared	4
Not Prepared at All	5

The results indicated 53.19% of parents felt their students were not prepared at all or a little prepared for the upcoming year, while 17.02% viewed their students as extremely prepared or mostly prepared. In comparison, results indicated 56.25% of teachers reported they felt students to be not prepared at all or a little prepared compared to 12.50% of teachers who considered students to be mostly prepared. None of the teachers viewed students as extremely prepared for the upcoming school year (see Figure 3).

Figure 3

Perceptions Regarding Student Preparedness for the 2021–2022 School Year after Extended Closure Instruction



Survey Item Four. In your opinion, to what extent would the following factors have improved the school's response to mitigating learning loss during the extended closure (range of choices offered)?

Participants were asked their perceptions regarding the extent to which implementing video lectures from the teacher, increasing the number of assignments given, decreasing the number of assignments given, and implementing a "school day" schedule would have improved Missouri Middle School's response to mitigating learning loss during the extended closure. For these questions, a Likert-type scale ranged from *strongly agree* to *strongly disagree* with five responses possible and a value assigned to each response (see Table 4).

Table 4

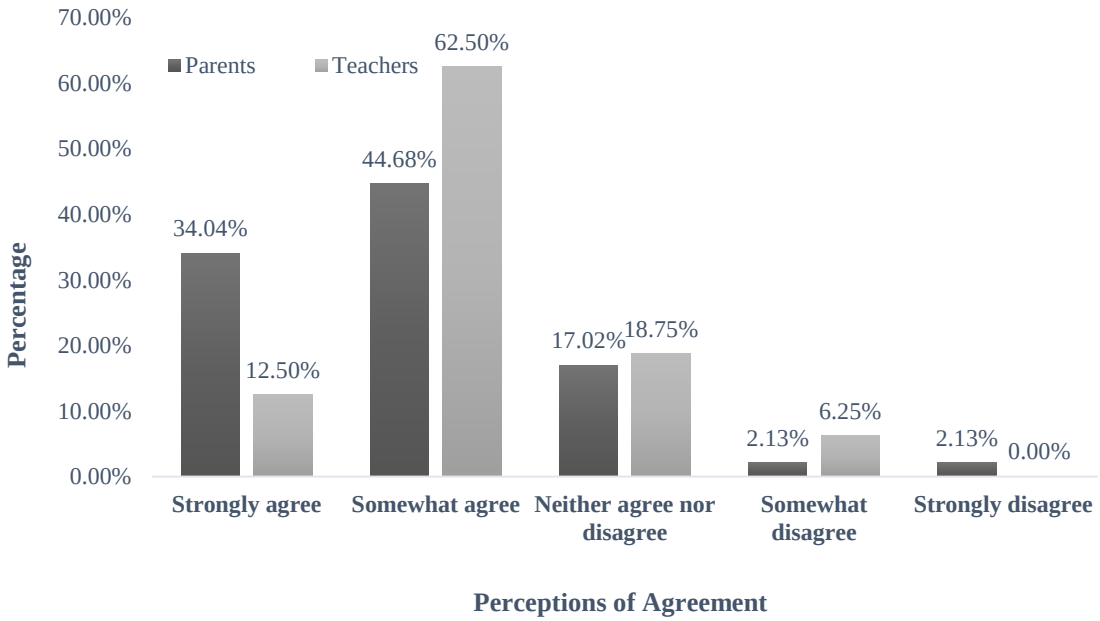
Scale Responses for Parent Survey Item Four

Response	Assigned Score
Strongly Agree	1
Somewhat Agree	2
Neither Agree nor Disagree	3
Somewhat Disagree	4
Strongly Disagree	5

In the first category, participants were asked their opinions on whether implementing video lectures from the teacher would have improved the school's response to mitigating learning loss during the extended closure. The results indicated 4.26% of parents either strongly disagreed or somewhat disagreed video lectures would have been helpful, compared to 78.72% who strongly agreed or somewhat agreed. In comparison, results indicated 6.25% of teachers reported they somewhat disagreed that video lectures would be helpful, while 75.0% of teachers strongly agreed or somewhat agreed. None of the teachers strongly disagreed video lectures would have been beneficial (see Figure 4).

Figure 4

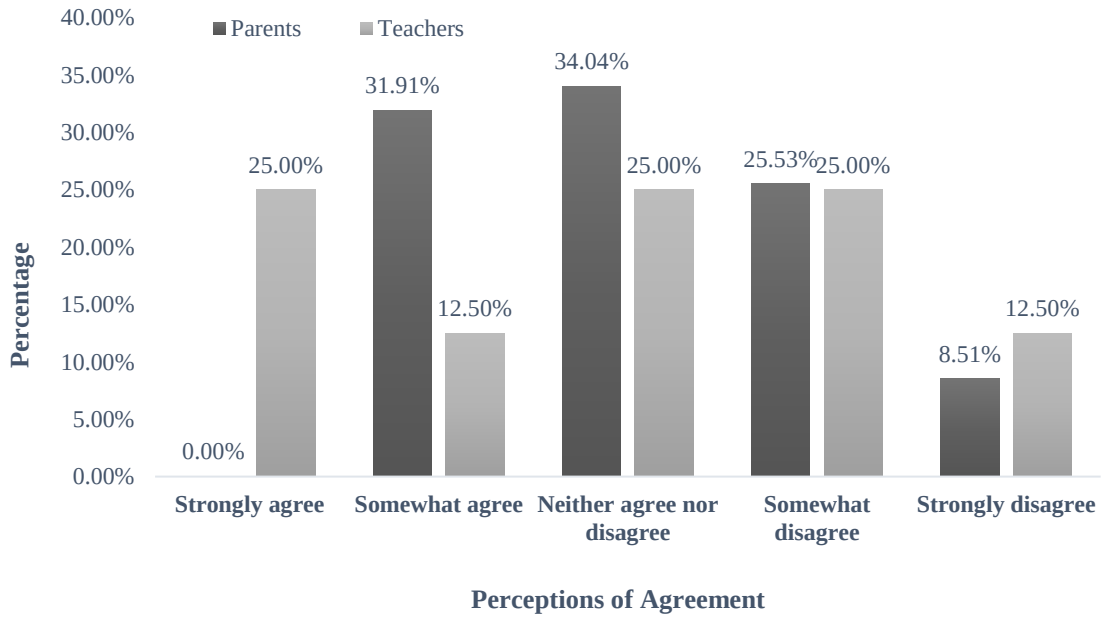
Perceptions on Whether or Not Implementing Video Lectures from Teachers Would Have Improved the School's Response to Mitigating Learning Loss During the Extended Closure



In the second category, participants were asked their opinions on whether increasing the number of assignments would have improved the school's response to mitigating learning loss during the extended closure. The results indicated 34.04% of parents either strongly disagreed or somewhat disagreed that increasing the number of assignments would have been helpful, compared to 31.91% who somewhat agreed. In comparison, results indicated 37.5% of teachers reported they strongly disagreed or somewhat disagreed that increasing the number of assignments would be helpful, while 37.5% of teachers strongly agreed or somewhat agreed. None of the parents strongly agreed that increasing the number of assignments would have been beneficial (see Figure 5).

Figure 5

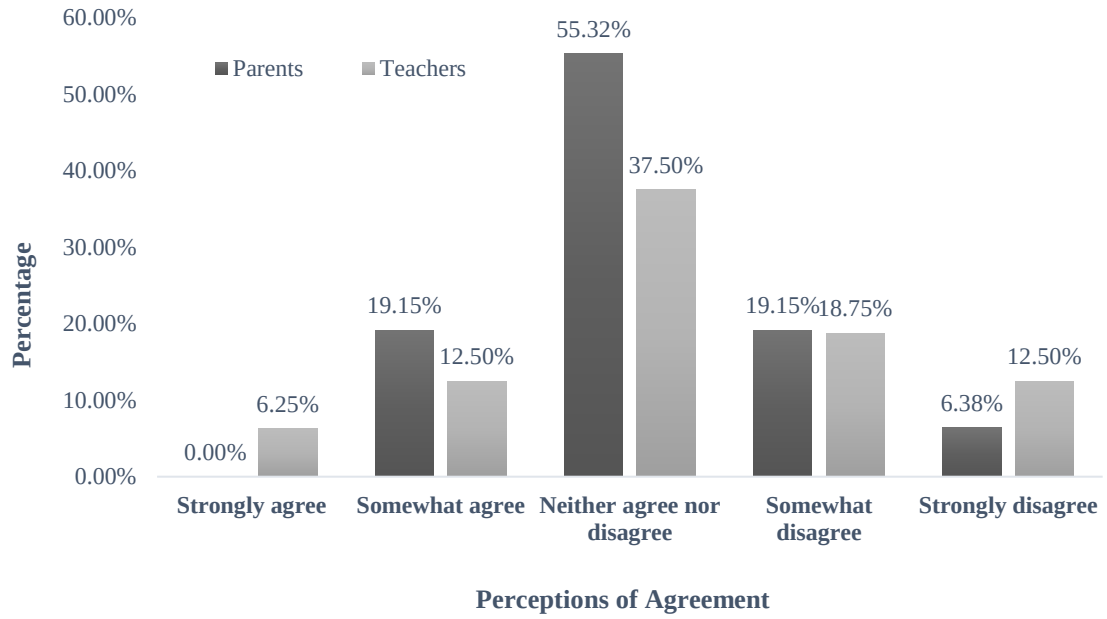
Perceptions on Whether or Not Increasing the Number of Assignments Would Have Improved the School's Response to Mitigating Learning Loss During the Extended Closure



In the third category, participants were asked their opinions on whether decreasing the number of assignments would have improved the school's response to mitigating learning loss during the extended closure. The results indicated 25.53% of parents either strongly disagreed or somewhat disagreed that decreasing the number of assignments would have been helpful, compared to 19.15% who somewhat agreed. In comparison, results indicated 31.25% of teachers reported they strongly disagreed or somewhat disagreed that decreasing the number of assignments would be helpful, while 18.75% of teachers strongly agreed or somewhat agreed. None of the parents strongly agreed that decreasing the number of assignments would have been beneficial (see Figure 6).

Figure 6

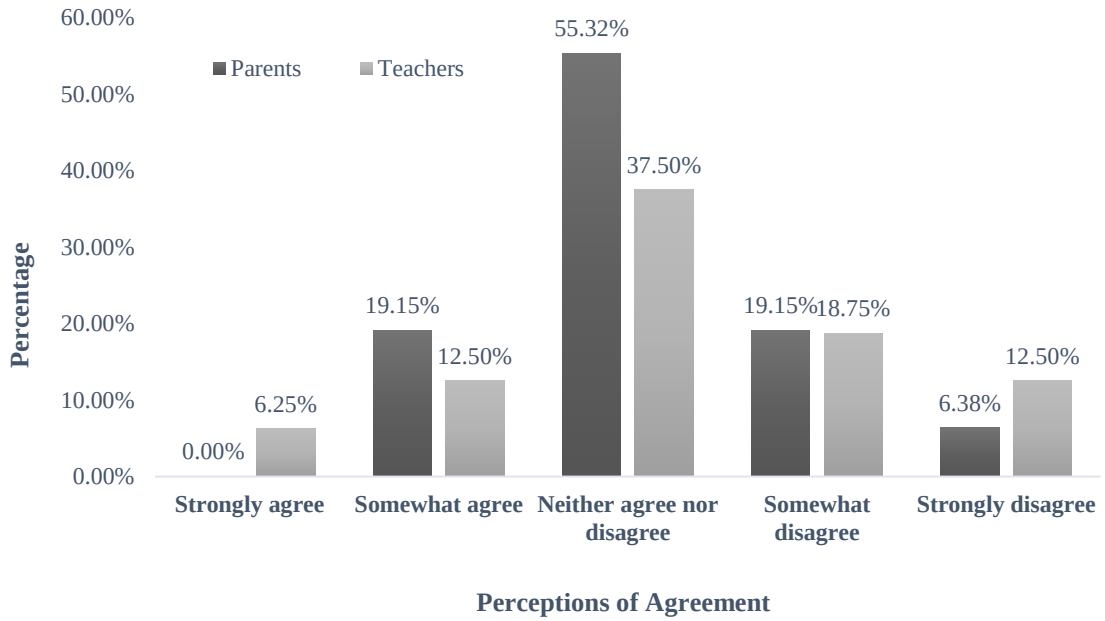
Perceptions on Whether or Not Decreasing the Number of Assignments Would Have Improved the School's Response to Mitigating Learning Loss During the Extended Closure



In the fourth category, participants were asked their opinions on whether implementing a "school day" schedule would have improved the school's response to mitigating learning loss during the extended closure. The results indicated 19.15% of parents either strongly disagreed or somewhat disagreed that implementing a "school day" schedule would have been helpful, compared to 65.95% who strongly agreed or somewhat agreed. In comparison, results indicated 18.75% of teachers reported they somewhat disagreed that implementing a "school day" schedule would be helpful, while 56.25% of teachers strongly agreed or somewhat agreed. None of the teachers strongly disagreed that implementing a "school day" schedule would have been beneficial (see Figure 7).

Figure 7

Perceptions on Whether or Not Implementing a "School Day" Schedule Would Have Improved the School's Response to Mitigating Learning Loss During the Extended Closure



Survey Item Five. How often did you perform the following (range of choices was offered)?

Item five was also a multi-part question consisting of three categories. Parents were asked their perceptions regarding the frequency with which teachers checked in with their students, provided feedback on assignments, and provided praise or encouragement. Teachers were asked their perceptions regarding the frequency with which they performed these actions for their students. For these questions, a Likert-type scale ranged from *very often* to *never* with five responses possible and a value assigned to each response (see Table 5).

Table 5

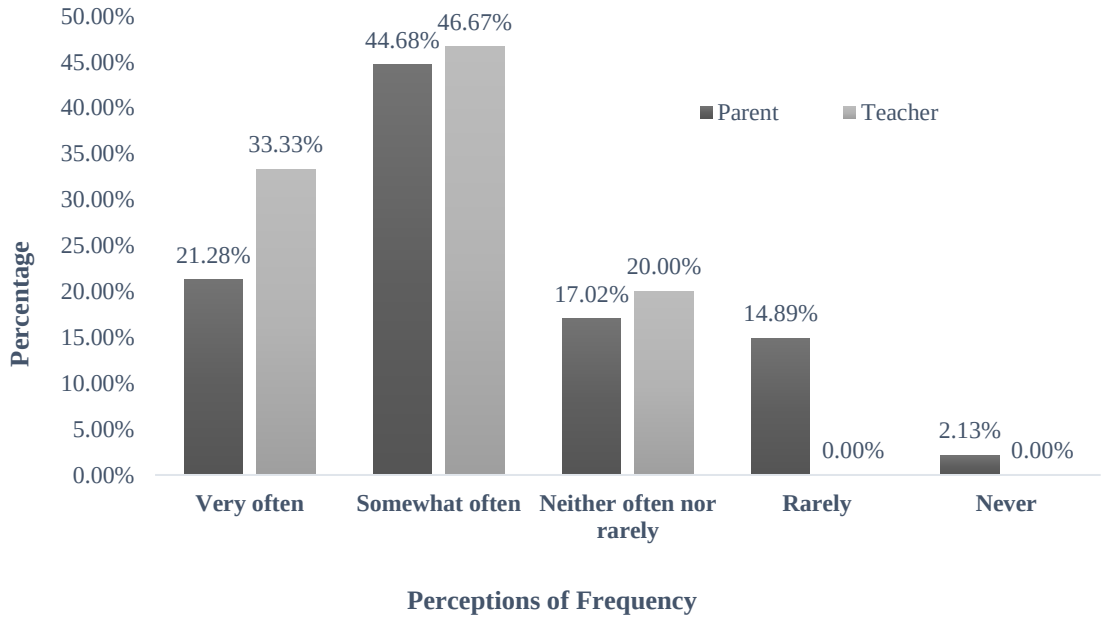
Scale Responses for Parent Survey Item Five

Response	Assigned Score
Very Often	1
Somewhat Often	2
Neither Often nor Rarely	3
Rarely	4
Never	5

In the first category, participants were asked their opinions on how frequently the teacher checked in with students. The results indicated 17.02% of parents felt teachers either never or rarely checked in on their students, compared to 65.96% who reported teachers checked in very often or somewhat often. In comparison, results indicated 0.0% of teachers reported they never or rarely checked in on students, while 80.0% of teachers reported they checked in very often or somewhat often (see Figure 8).

Figure 8

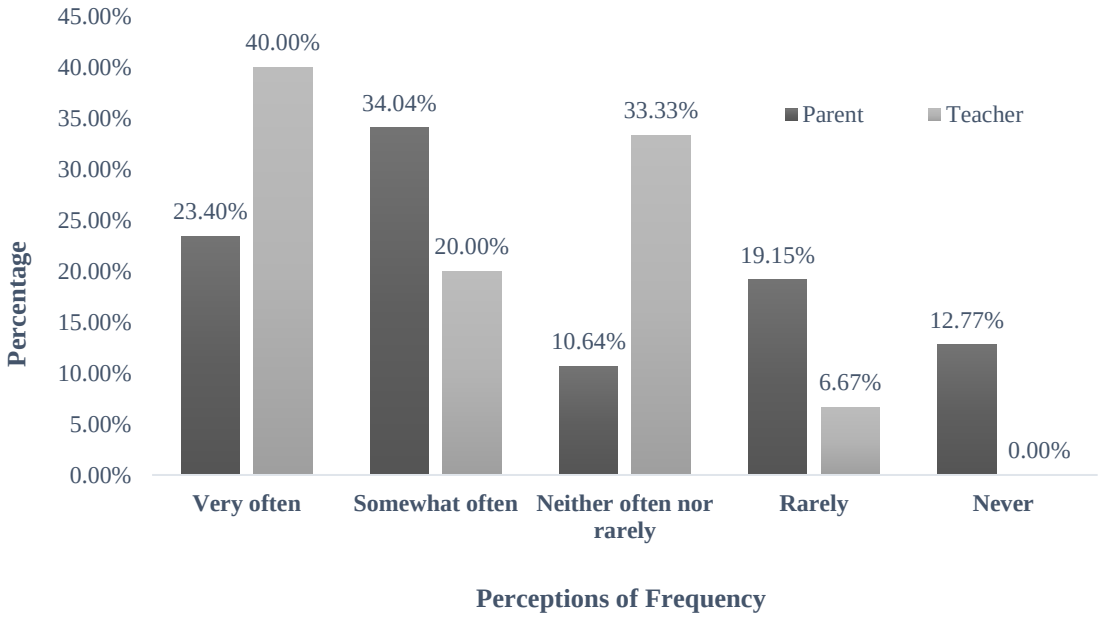
Perceptions on the Frequency with Which Teachers Checked In on Students During the Extended Closure



In the second category, participants were asked their opinions on how frequently the teacher provided feedback on student assignments. The results indicated 31.91% of parents felt teachers either never or rarely provided feedback on student assignments, compared to 57.45% who reported teachers provided feedback very often or somewhat often. In comparison, results indicated 6.7% of teachers reported they rarely provided feedback on assignments, while 60.0% of teachers reported they provided feedback very often or somewhat often. None of the teachers reported never providing feedback on student assignments (see Figure 9).

Figure 9

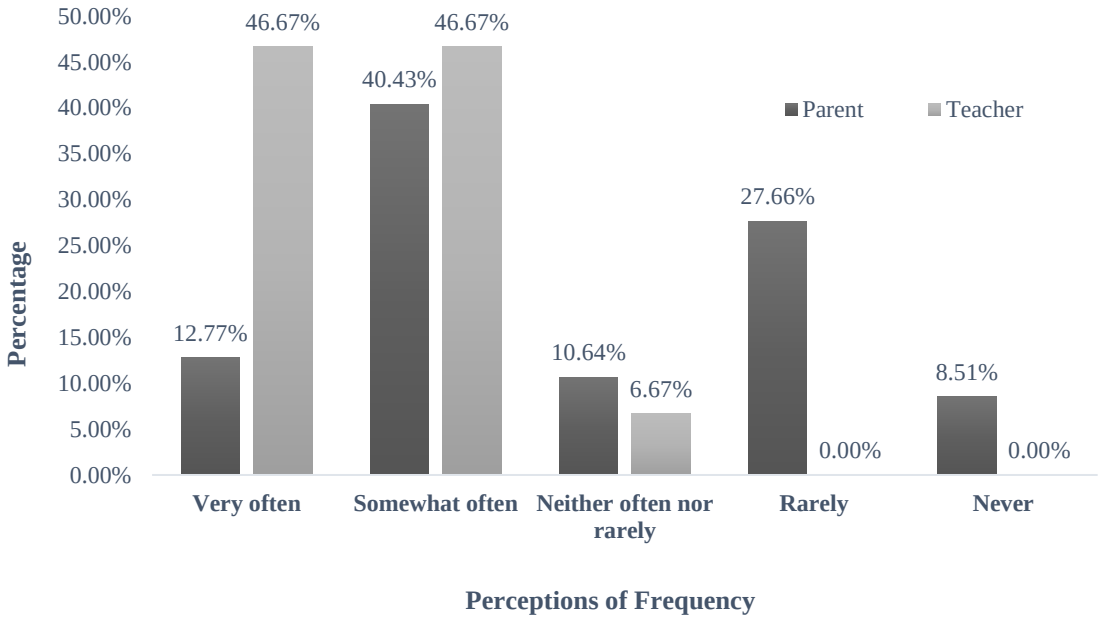
Perceptions on the Frequency with Which Teachers Provided Feedback on Student Assignments During the Extended Closure



In the third category, participants were asked their opinions on how frequently the teacher provided praise and encouragement. The results indicated 36.17% of parents felt teachers either never or rarely provided encouragement or praise, compared to 53.19% who reported teachers provided encouragement or praise very often or somewhat often. In comparison, results indicated 0.0% of teachers reported they never or rarely provided praise or encouragement, while 93.33% of teachers reported they provided praise or encouragement very often or somewhat often (see Figure 10).

Figure 10

Perceptions on the Frequency with Which Teachers Provided Praise or Encouragement During the Extended Closure



Survey Item Six. In your opinion, to what extent would the following factors have improved the school's response to mitigating learning loss during the extended closure?

Item six was another multi-part question consisting of three sub-questions. Participants were asked their opinions on whether or not increased feedback on assignments, increased frequency of praise and encouragement from teachers, and increased communication involving updates and information from the school would have improved the school's response to mitigating learning loss during the extended closure. For these questions, a Likert-type scale ranged from *strongly agree* to *strongly disagree* with five responses possible and a value assigned to each response (see Table 6).

Table 6

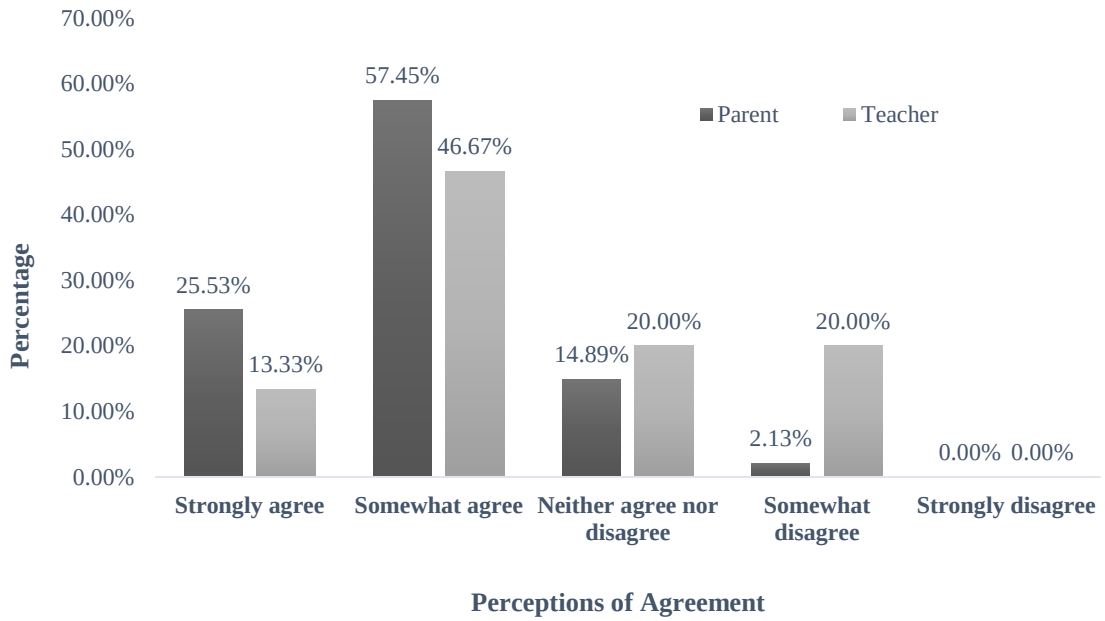
Scale Responses for Parent Survey Item Six

Response	Assigned Score
Strongly Agree	1
Somewhat Agree	2
Neither Agree nor Disagree	3
Somewhat Disagree	4
Strongly Disagree	5

In the first category, participants were asked their opinions on whether increased feedback from the teacher on assignments would have improved the school's response to mitigating learning loss during the extended closure. The results indicated 2.13% of parents somewhat disagreed that increased feedback would have been helpful, compared to 82.98% who strongly agreed or somewhat agreed. In comparison, results indicated 20.0% of teachers reported they somewhat disagreed that increased feedback would be helpful, while 60.0% of teachers strongly agreed or somewhat agreed. None of the parents or teachers strongly disagreed that increased feedback would have been beneficial (see Figure 11).

Figure 11

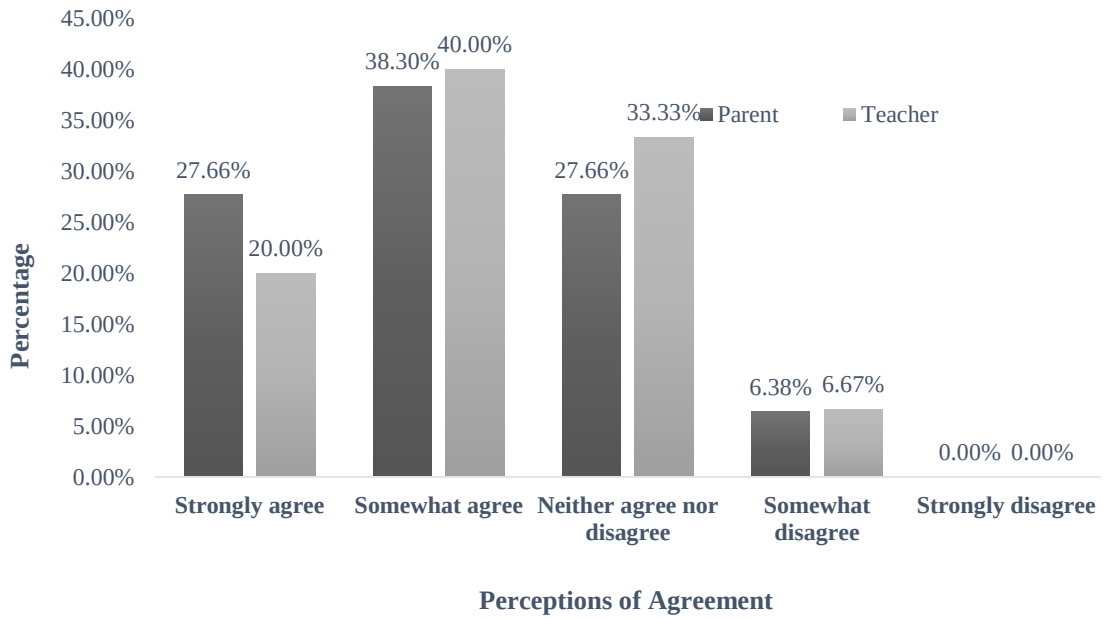
Perceptions Regarding If Increased Feedback on Assignments Would Have Improved the School's Response to Mitigating Learning Loss During the Extended Closure



In the second category, participants were asked their opinions on whether or not increased praise and encouragement from the teacher would have improved the school's response to mitigating learning loss during the extended closure. The results indicated 6.38% of parents somewhat disagreed that increased praise or encouragement would have been helpful, compared to 65.96% who strongly agreed or somewhat agreed. In comparison, results indicated 6.67% of teachers reported they somewhat disagreed that increased praise or encouragement would be helpful, while 60.0% of teachers strongly agreed or somewhat agreed. None of the parents or teachers strongly disagreed that increased praise or encouragement would have been beneficial (see Figure 12).

Figure 12

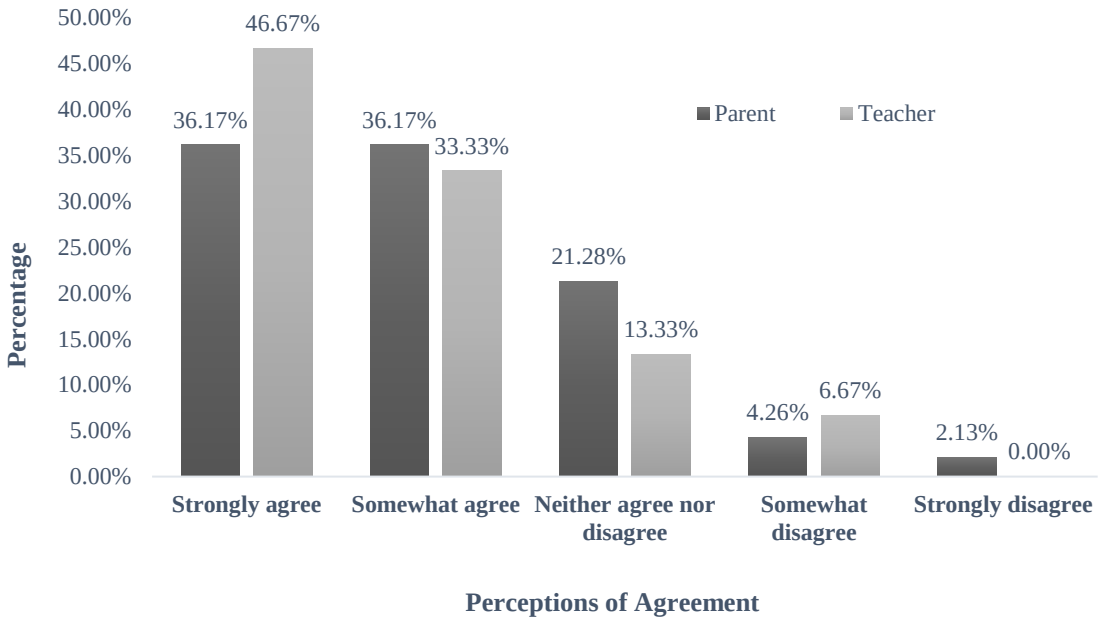
Perceptions Regarding If Increased Praise or Encouragement Would Have Improved the School's Response to Mitigating Learning Loss During the Extended Closure



In the third category, participants were asked their opinions on whether or not increased communication regarding updates and information from the school would have improved the school's response to mitigating learning loss during the extended closure. The results indicated 6.38% of parents either strongly disagreed or somewhat disagreed that increased communication would have been helpful, compared to 72.34% who strongly agreed or somewhat agreed. In comparison, results indicated 6.67% of teachers reported they somewhat disagreed that increased communication would be helpful, while 80.0% of teachers strongly agreed or somewhat agreed. None of the teachers strongly disagreed that increased communication would have been beneficial (see Figure 13).

Figure 13

Perceptions of Whether or Not Increased Communication Regarding Updates and Information from the School Would Have Improved the School's Response to Mitigating Learning Loss During the Extended Closure



Survey Item Seven. In general, how well do you agree with the following statements (range of choices offered)?

Item seven was a multi-part question consisting of three sub-questions. Participants were asked to report their perceptions regarding technology. Specifically, participants were asked to state their level of agreement with statements that their students had access to an Internet-capable device, access to the Internet at home, and experienced connectivity issues that negatively impacted teaching and learning. For these questions, a Likert-type scale ranged from *strongly agree* to *strongly disagree* with five responses possible and a value assigned to each response (see Table 7).

Table 7

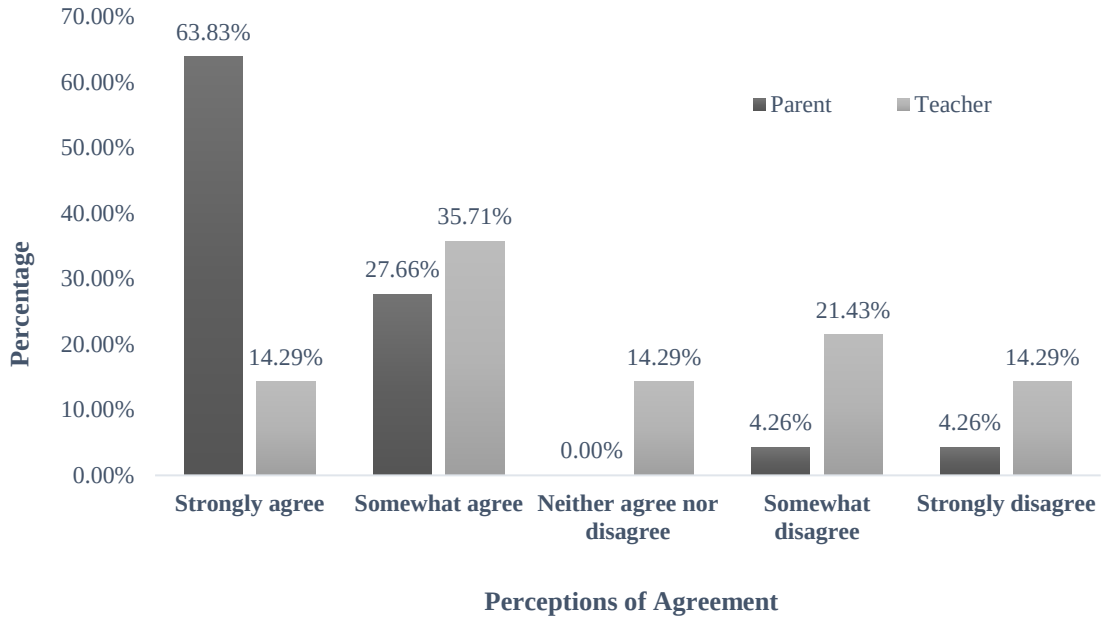
Scale Responses for Parent Survey Item Seven

Response	Assigned Score
Strongly Agree	1
Somewhat Agree	2
Neither Agree nor Disagree	3
Somewhat Disagree	4
Strongly Disagree	5

In the first category, participants were asked how well they agreed the majority of students had access to an Internet-capable device. The results indicated 8.51% of parents either strongly disagreed or somewhat disagreed that most students had access to an Internet-capable device, compared to 91.49% who strongly agreed or somewhat agreed. In comparison, results indicated 35.71% of teachers reported they strongly disagreed or somewhat disagreed that a majority of students had access to an Internet-capable device, while 50.0% of teachers strongly agreed or somewhat agreed (see Figure 14).

Figure 14

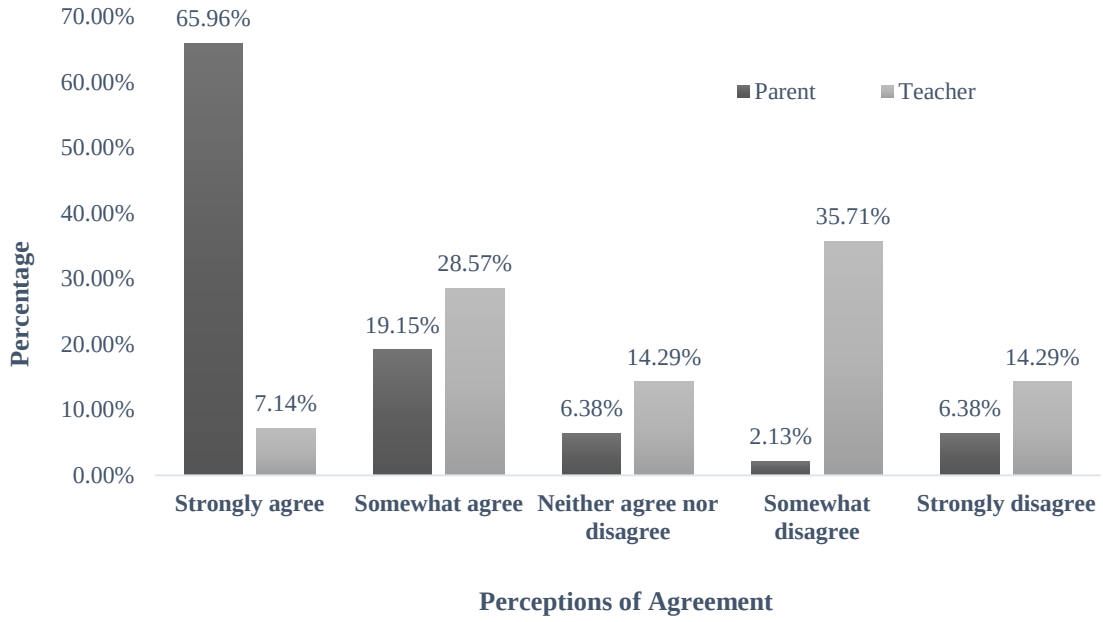
Perceptions Regarding Student Access to an Internet-Capable Device



In the second category, participants were asked how well they agreed the majority of students had access to the Internet at home. The results indicated 8.51% of parents either strongly disagreed or somewhat disagreed that most students had access to the Internet at home, compared to 85.11% who strongly agreed or somewhat agreed. In comparison, results indicated 50.0% of teachers reported they strongly disagreed or somewhat disagreed that a majority of students had access to the Internet at home, while 35.71% of teachers strongly agreed or somewhat agreed (see Figure 15).

Figure 15

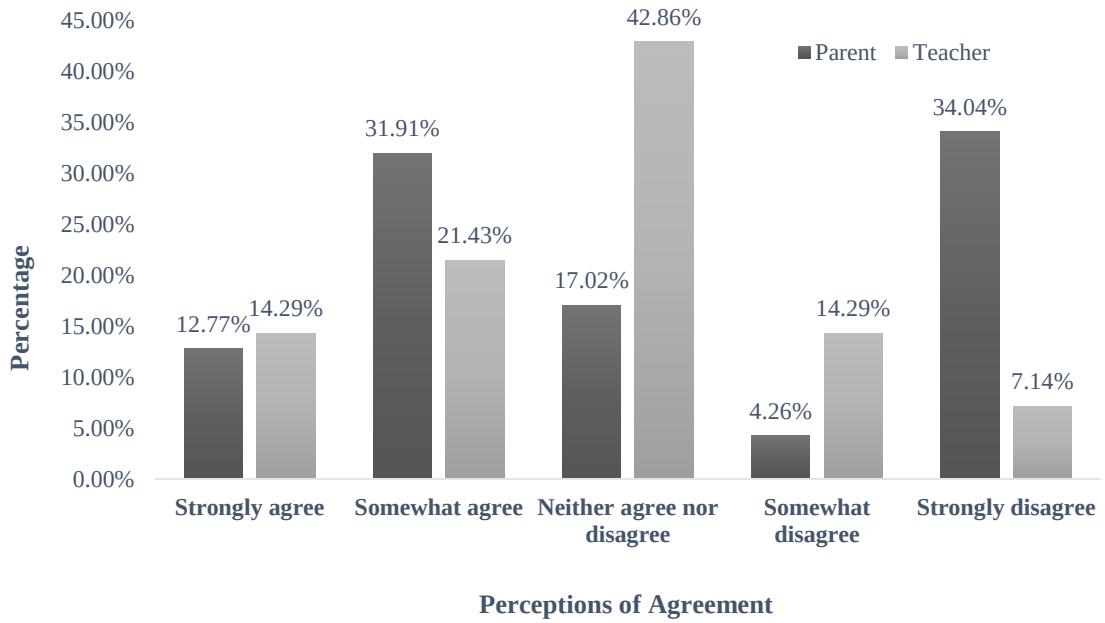
Perceptions Regarding Student Access to the Internet at Home



In the third category, participants were asked how well they agreed the majority of students experienced connectivity issues that negatively impacted teaching and learning. The results indicated 38.3% of parents either strongly disagreed or somewhat disagreed that most students had experienced connectivity issues, compared to 44.68% who strongly agreed or somewhat agreed. In comparison, results indicated 21.43% of teachers reported they strongly disagreed or somewhat disagreed that a majority of students had experienced connectivity issues, while 35.71% of teachers strongly agreed or somewhat agreed (see Figure 16).

Figure 16

Perceptions Regarding Students Experiencing Connectivity Issues That Negatively Impacted Teaching and Learning



Survey Item Eight. In your opinion, to what extent would the following factors have improved the school's response to mitigating learning loss during the extended closure (range of choices offered).

Item eight was a multi-part question consisting of three sub-questions. Participants were asked their opinions regarding how providing more devices for students, more opportunities for Internet access, and more access to digital and print resources would have improved the school's response to mitigating learning loss during the extended closure. For these questions, a Likert-type scale ranged from *strongly agree* to *strongly disagree* with five responses possible and a value assigned to each response (see Table 8).

Table 8

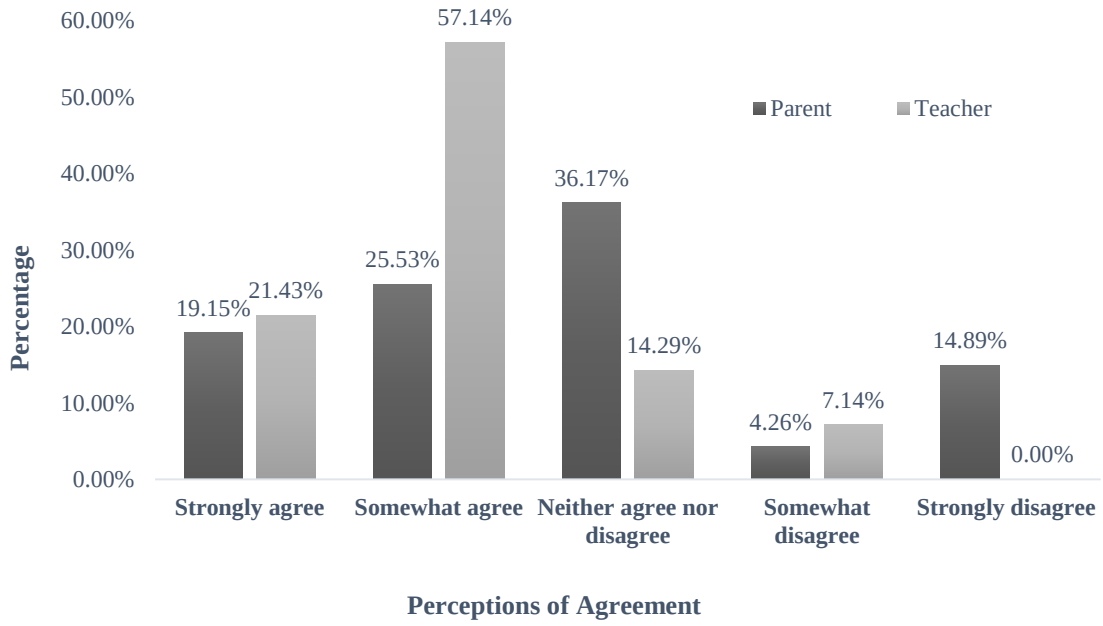
Scale Responses for Parent Survey Item Eight

Response	Assigned Score
Strongly Agree	1
Somewhat Agree	2
Neither Agree nor Disagree	3
Somewhat Disagree	4
Strongly Disagree	5

In the first category, participants were asked their opinions on whether or not providing more devices for students would have improved the school's response to mitigating learning loss during the extended closure. The results indicated 19.15% of parents either strongly disagreed or somewhat disagreed that providing more devices would have been helpful, compared to 44.68% who strongly agreed or somewhat agreed. In comparison, results indicated 7.14% of teachers reported they somewhat disagreed that more devices would be helpful, while 78.57% of teachers strongly agreed or somewhat agreed. None of the teachers strongly disagreed that providing more devices would have been beneficial (see Figure 17).

Figure 17

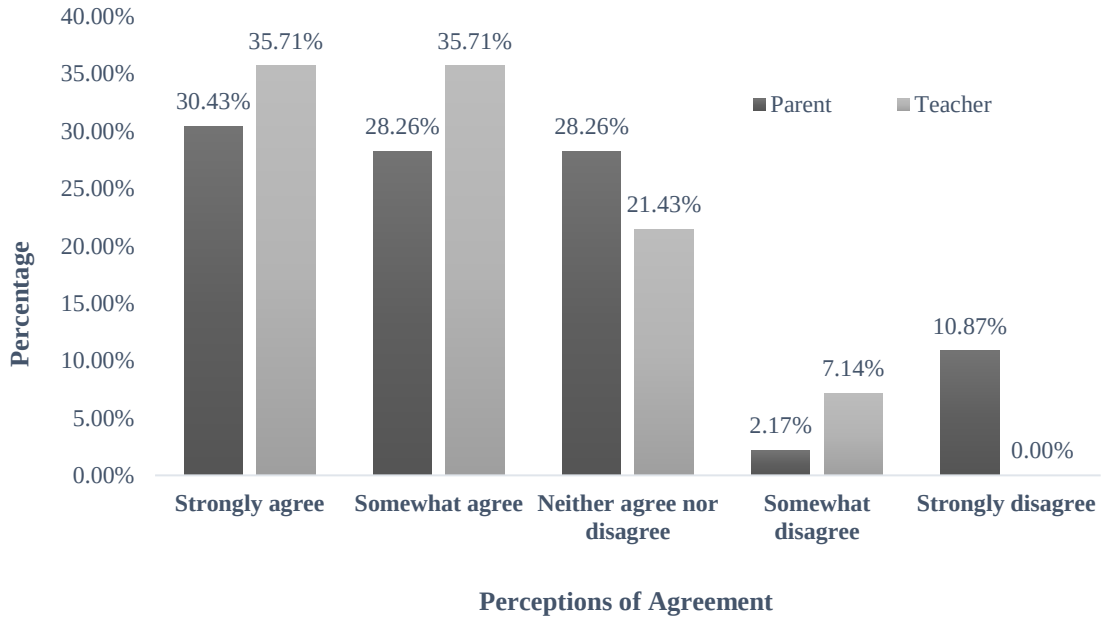
Perceptions on the Benefit of Providing More Devices for Students



In the second category, participants were asked their opinions on whether or not providing more opportunities for Internet access would have improved the school's response to mitigating learning loss during the extended closure. The results indicated 13.04% of parents either strongly disagreed or somewhat disagreed that providing more opportunities for Internet access would have been helpful, compared to 58.7% who strongly agreed or somewhat agreed. In comparison, results indicated 7.14% of teachers reported they somewhat disagreed that more opportunities for Internet access would be helpful, while 71.43% of teachers strongly agreed or somewhat agreed. None of the teachers strongly disagreed that providing more opportunities for Internet access would have been beneficial (see Figure 18).

Figure 18

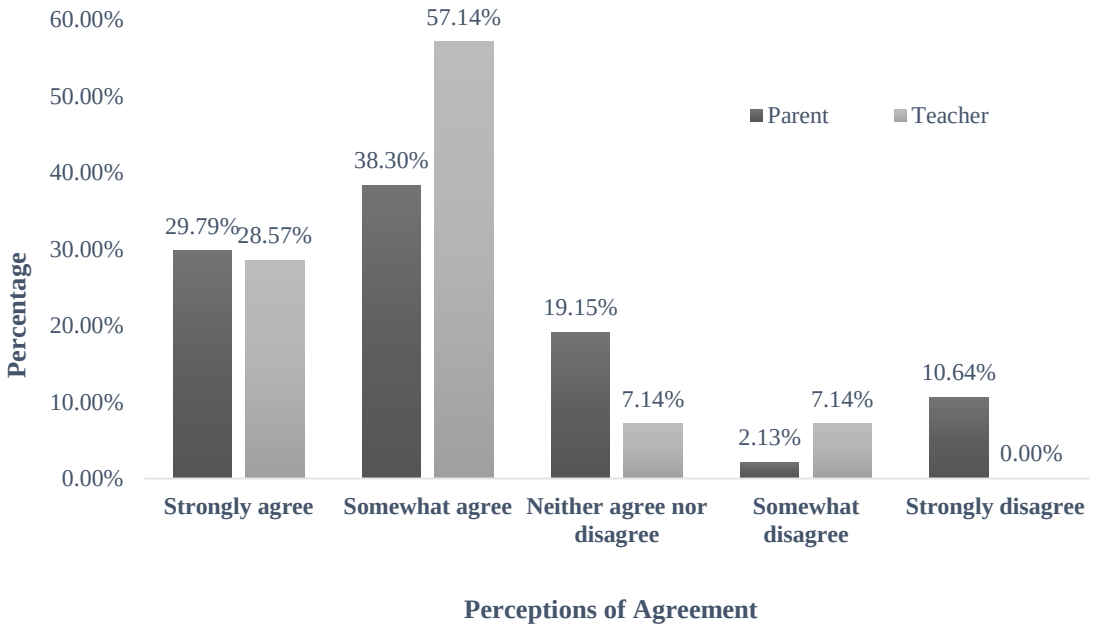
Perceptions on the Benefit of Providing More Opportunities for Internet Access



In the third category, participants were asked their opinions on whether or not providing more resources, both digital and print, would have improved the school's response to mitigating learning loss during the extended closure. The results indicated 12.77% of parents either strongly disagreed or somewhat disagreed that providing more digital and print resources would have been helpful, compared to 68.09% who strongly agreed or somewhat agreed. In comparison, results indicated 7.14% of teachers reported they somewhat disagreed that providing more digital and print resources would be helpful, while 85.71% of teachers strongly agreed or somewhat agreed. None of the teachers strongly disagreed that providing more digital and print resources would have been beneficial (see Figure 19).

Figure 19

Perceptions on the Benefit of Providing More Digital and Print Resources



Teacher and Principal Perceptions

Teachers and the principal completed a survey to determine their perceptions regarding Missouri Middle School's response to the COVID-19 extended school closure in the areas of instruction, communication, and access to technology. The language in three survey items addressed parent and teacher perceptions regarding the level and rigor of instruction received during the extended closure, especially when compared to in-class learning. The language in one multi-part item focused on the frequency of teacher-to-student communication including checking in, assignment feedback, and praise or encouragement. The verbiage of another multi-part item addressed student access to devices, home Internet availability, and the quality or reliability of Internet access for educational purposes. Three more multi-part items asked about potential improvements to

instruction, communication, and access to technology and the perceived benefits of those improvements to the school's response to the extended closure.

Each item was presented in the form of a Likert-type scale. Raw data from Qualtrics were downloaded into an Excel spreadsheet where values of each response were assigned. Each item incorporated a different scale shown in the subsequent tables. The principal and teachers responded to each question regarding their perceptions as previously described via the survey instrument. Due to the small principal sample size, comparisons were made by calculating the mode response of each teacher survey compared to the principal response to the same question.

Survey Item One. In general, how well do you agree with the following statement: "The instruction my students/child received during the extended closure was comparable to the instruction my students received from in-class learning."

The participants were asked to reflect on their perceptions of instruction during the extended closure compared to regular in-class learning. For this question, a Likert-type scale ranged from *strongly agree* to *strongly disagree* with five responses possible and a value assigned to each response (see Table 9).

Table 9

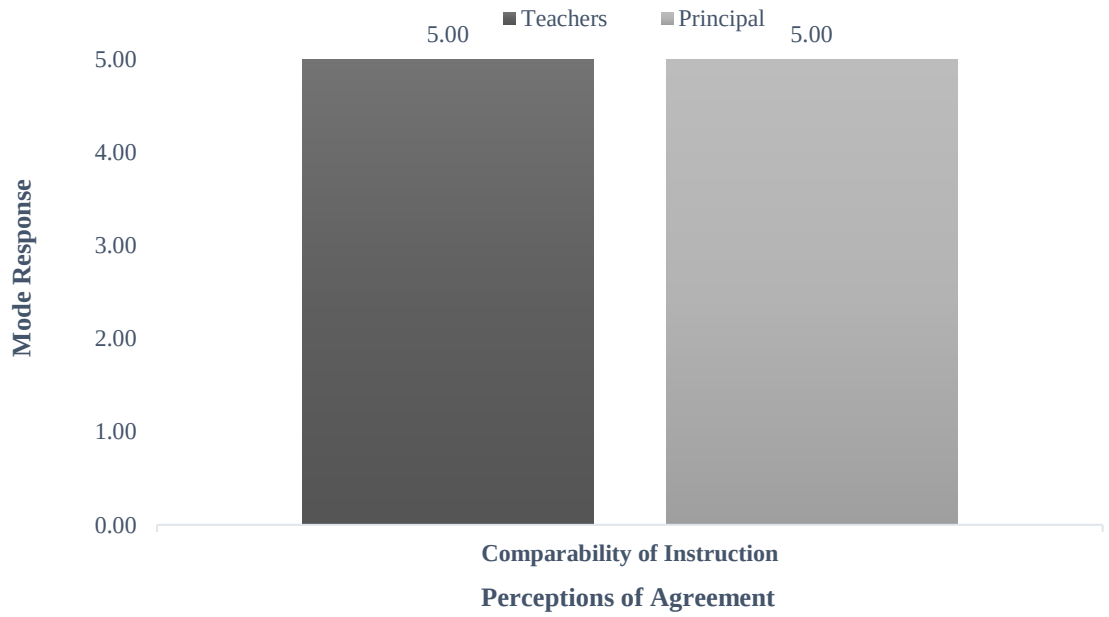
Scale Responses for Staff Survey Item One

Response	Assigned Score
Strongly Agree	1
Somewhat Agree	2
Neither Agree nor Disagree	3
Somewhat Disagree	4
Strongly Disagree	5

The results indicated the most common teacher response was strongly disagree, matching the response from the principal (see Figure 20).

Figure 20

Perceptions Regarding Instruction Received During the Extended Closure Compared to In-Class Instruction



Survey Item Two. In general, compared to in-classroom instruction, the instruction my students/child received during the extended closure was (extremely difficult, somewhat difficult, neither easy nor difficult, somewhat easy, extremely easy).

The participants were asked to reflect on their perceptions of the difficulty of instruction during the extended closure compared to in-class learning. For this question, a Likert-type scale ranged from *extremely difficult* to *extremely easy* with five responses possible and a value assigned to each response (see Table 10).

Table 10

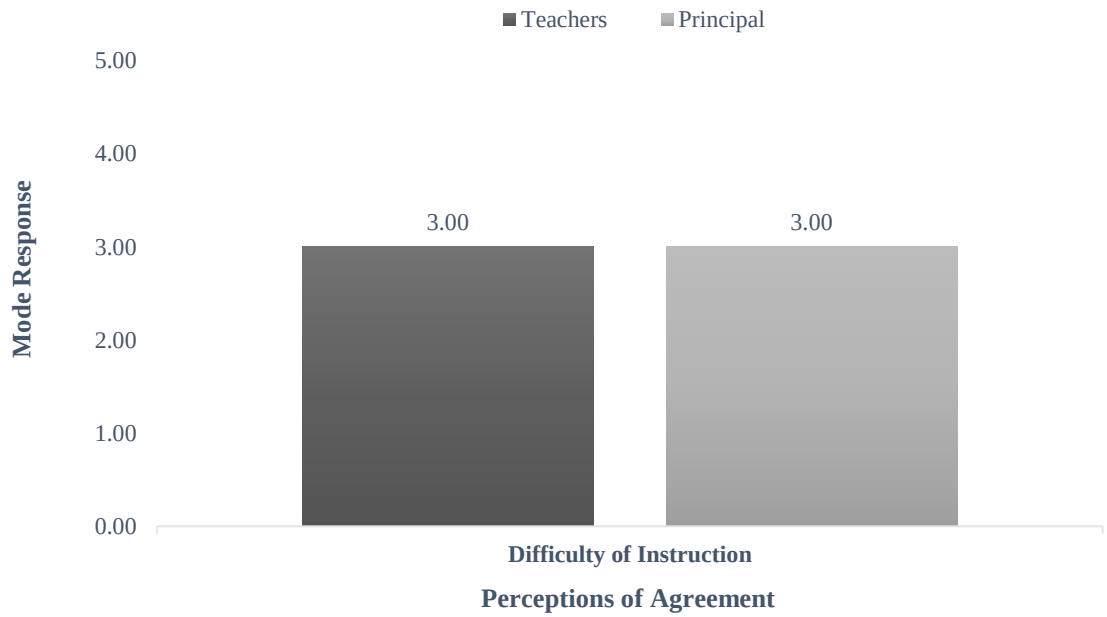
Scale Responses for Staff Survey Item Two

Response	Assigned Score
Extremely Difficult	1
Somewhat Difficult	2
Neither Easy nor Difficult	3
Somewhat Easy	4
Extremely Easy	5

The results indicated the most common teacher response as neither easy nor difficult, matching the response from the principal (see Figure 21).

Figure 21

Perceptions Regarding the Difficulty of Instruction Received During the Extended Closure Compared to In-Class Instruction



Survey Item Three. After completing the assignments assigned during the extended closure, I feel my students are _____ for the next school year.

The participants were asked to reflect on their perceptions regarding how prepared students were for the upcoming school year based on the instruction received during the extended closure. For this question, a Likert-type scale ranged from *extremely prepared* to *not prepared at all* with five responses possible and a value assigned to each response (see Table 11).

Table 11

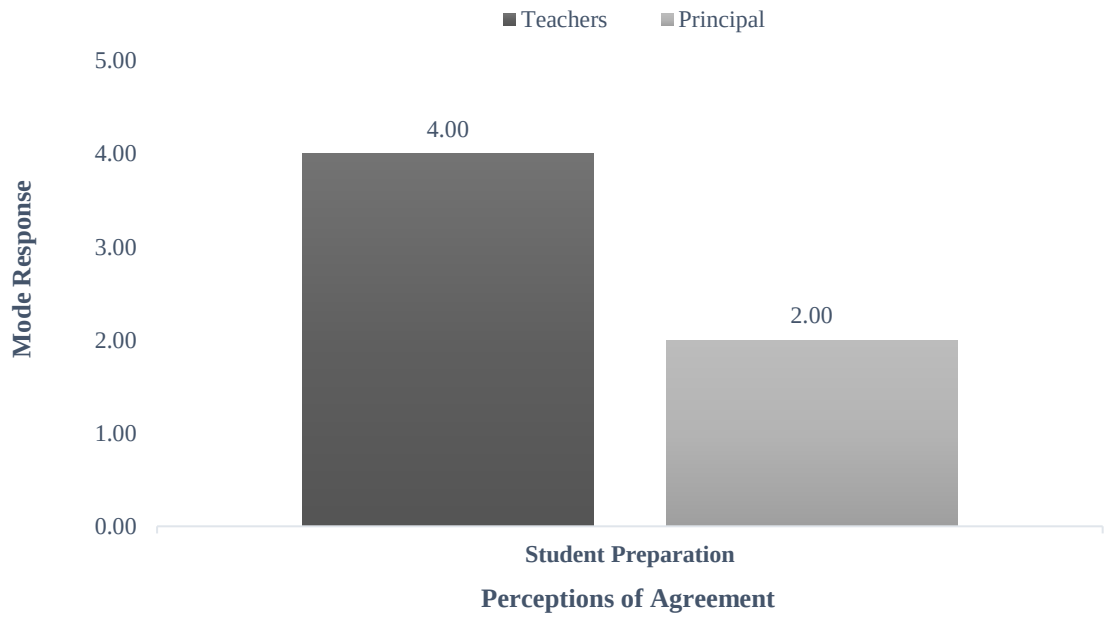
Scale Responses for Staff Survey Item Three

Response	Assigned Score
Extremely Prepared	1
Mostly Prepared	2
Moderately Prepared	3
A Little Prepared	4
Not Prepared at All	5

The results indicated the most common teacher response was that students were a little prepared for the upcoming year. This differed from the principal response of mostly prepared (see Figure 22).

Figure 22

Perceptions Regarding Student Preparedness for the 2021–2022 School Year after Extended Closure Instruction



Survey Item Four. In your opinion, to what extent would the following factors have improved the school's response to mitigating learning loss during the extended closure (range of choices offered).

Item four was a multi-part question consisting of several sub-questions. Participants were asked their perceptions regarding the extent to which implementing video lectures from the teacher, increasing the number of assignments given, decreasing the number of assignments given, and implementing a "school day" schedule would have improved Missouri Middle School's response to mitigating learning loss during the extended closure. For these questions, a Likert-type scale ranged from *strongly agree* to *strongly disagree* with five responses possible and a value assigned to each response (see Table 12).

Table 12

Scale Responses for Staff Survey Item Four

Response	Assigned Score
Strongly Agree	1
Somewhat Agree	2
Neither Agree nor Disagree	3
Somewhat Disagree	4
Strongly Disagree	5

In the first category, participants were asked their opinions on whether or not implementing video lectures from the teacher would have improved the school's response to mitigating learning loss during the extended closure. The results indicated the most common teacher response was somewhat agree, matching the principal response (see Figure 23).

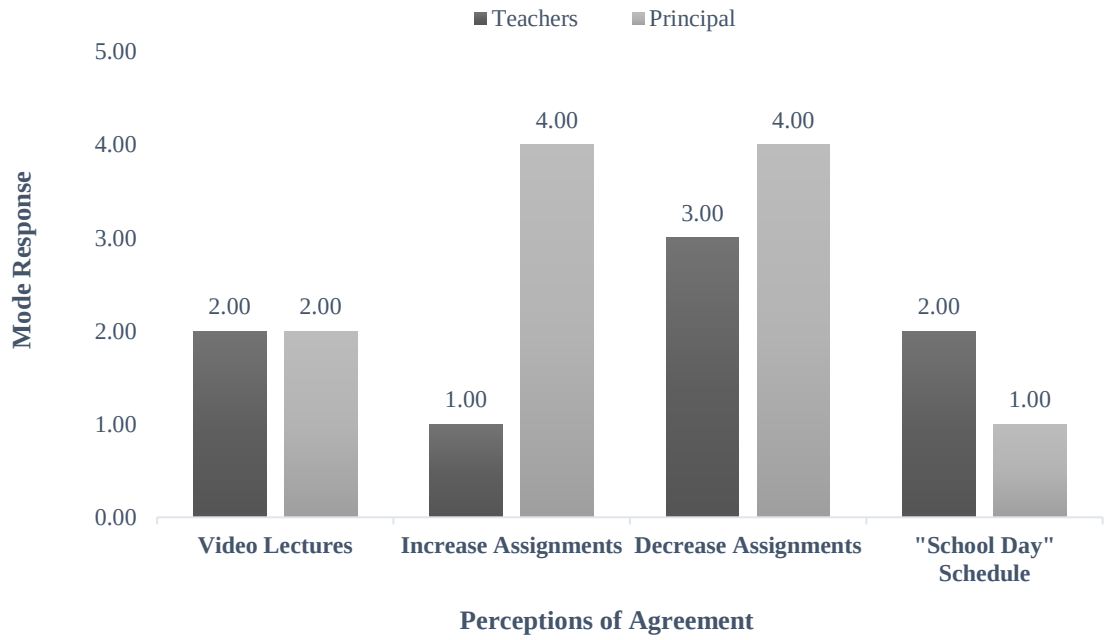
In the second category, participants were asked their opinions on whether or not increasing the number of assignments would have improved the school's response to mitigating learning loss during the extended closure. The results indicated the most common teacher response was strongly agree, contrasting with the principal response of somewhat disagree (see Figure 23).

In the third category, participants were asked their opinions on whether or not decreasing the number of assignments would have improved the school's response to mitigating learning loss during the extended closure. The results indicated the most common teacher response was neither agree nor disagree, compared to the principal response of somewhat agree (see Figure 23).

In the fourth category, participants were asked their opinions on whether or not implementing a “school day” schedule would have improved the school’s response to mitigating learning loss during the extended school closure. The results indicated the most common teacher response was somewhat agree, compared to the principal response of strongly agree (see Figure 23).

Figure 23

Perceptions on Implementing Factors That Would Have Improved the School's Response to Mitigating Learning Loss During the Extended Closure



Survey Item Five. How often did you perform the following (range of choices offered)?

Item five was also a multi-part question consisting of three sub-questions. The principal was asked for perceptions regarding the frequency with which teachers checked in with students, provided feedback on assignments, and provided praise or encouragement. Teachers were asked their perceptions regarding the frequency with which they performed these actions for their students. For these questions, a Likert-type scale ranged from *very often* to *never* with five responses possible and a value assigned to each response (see Table 13).

Table 13

Scale Responses for Staff Survey Item Five

Response	Assigned Score
Very Often	1
Somewhat Often	2
Neither Often nor Rarely	3
Rarely	4
Never	5

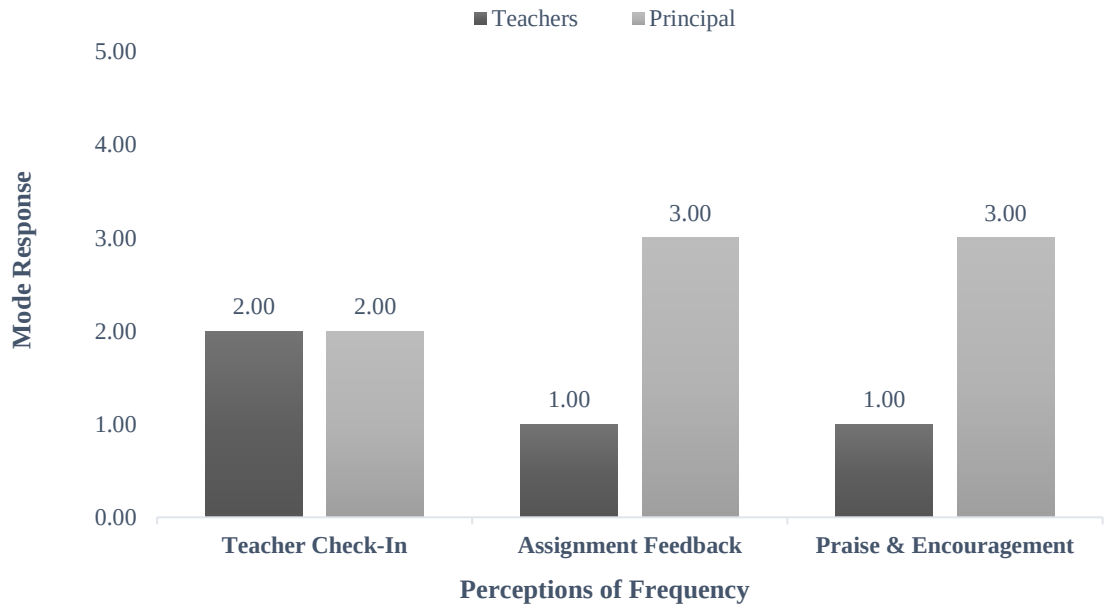
In the first category, participants were asked their opinions regarding how frequently the teacher checked in with students. The results indicated the most common teacher response as somewhat often, matching the principal response (see Figure 24).

In the second category, participants were asked their opinions regarding how frequently the teacher provided feedback on student assignments. The results indicated the most common teacher response was very often, while the principal responded with neither rarely nor often (see Figure 24).

In the third category, participants were asked their opinions regarding how frequently the teacher provided praise and encouragement. The results indicated the most common teacher response was very often, differing from the principal response of neither often nor rarely often (see Figure 24).

Figure 24

Perceptions on the Frequency of Teacher Check-Ins with Students, Assignment Feedback, and Praise and Encouragement Offered to Students During the Extended Closure



Survey Item Six. In your opinion, to what extent would the following factors have improved the school's response to mitigating learning loss during the extended closure (range of choices offered)?

Item six was another a multi-part question consisting of three sub-questions. Participants were asked their opinions regarding how providing increased feedback on assignments, increased frequency of praise and encouragement from teachers, and increased communication involving updates and information from the school would have improved the school's response to mitigating learning loss during the extended closure. For these questions, a Likert-type scale ranged from *strongly agree* to *strongly disagree* with five responses possible and a value assigned to each response (see Table 14).

Table 14

Scale Responses for Staff Survey Item Six

Response	Assigned Score
Strongly Agree	1
Somewhat Agree	2
Neither Agree nor Disagree	3
Somewhat Disagree	4
Strongly Disagree	5

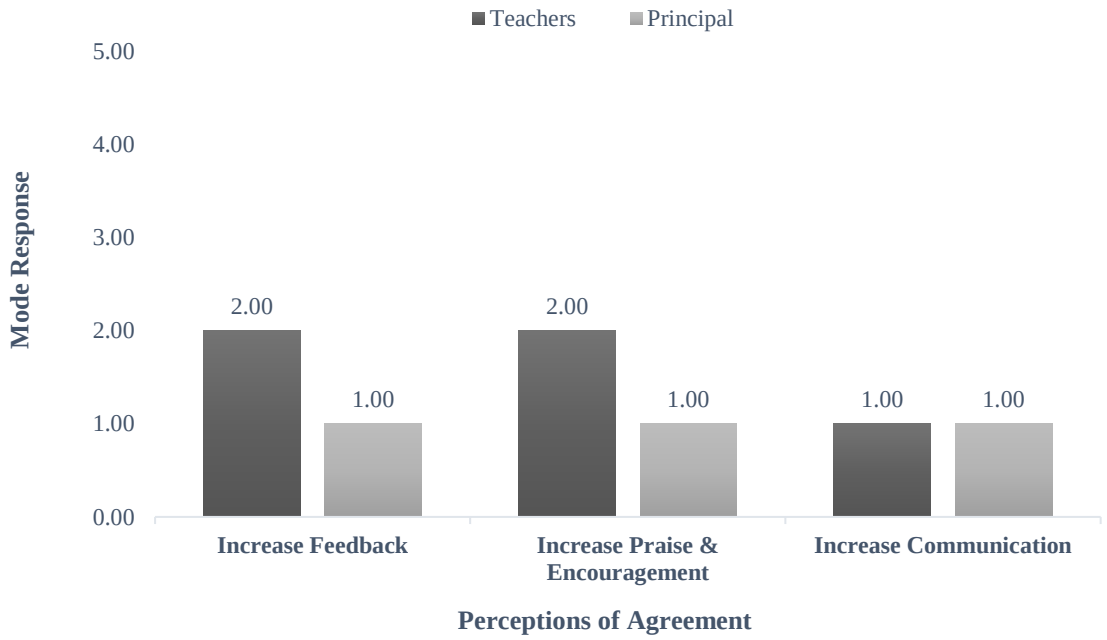
In the first category, participants were asked their opinions on whether or not increased feedback from the teacher on assignments would have improved the school's response to mitigating learning loss during the extended closure. The results indicated the most common teacher response was somewhat agree, while the principal response was strongly agree (see Figure 25).

In the second category, participants were asked their opinions on whether or not increased praise and encouragement from the teacher would have improved the school's response to mitigating learning loss during the extended closure. The results indicated the most common teacher response was somewhat agree, in contrast to the principal response of strongly agree (see Figure 25).

In the third category, participants were asked their opinions on whether or not increased communication regarding updates and information from the school would have improved the school's response to mitigating learning loss during the extended closure. The results indicated the most common teacher response was strongly agree, mirroring the principal response (see Figure 25).

Figure 25

Perceptions Regarding How Increased Feedback on Assignments, Praise and Encouragement of Students, and Communication with Parents Would Have Improved the School's Response to Mitigating Learning Loss During the Extended Closure



Survey Item Seven. In general, how well do you agree with the following statements (range of choices offered)?

Item seven was a multi-part question consisting of three sub-questions. Participants were asked to report their perceptions regarding technology. Specifically, participants were asked to state the level to which they agreed their students had access to an Internet-capable device, access to the Internet at home, and experienced connectivity issues that negatively impacted teaching and learning. For these questions, a Likert-type scale ranged from *strongly agree* to *strongly disagree* with five responses possible and a value assigned to each response (see Table 15).

Table 15

Scale Responses for Staff Survey Item Seven

Response	Assigned Score
Strongly Agree	1
Somewhat Agree	2
Neither Agree nor Disagree	3
Somewhat Disagree	4
Strongly Disagree	5

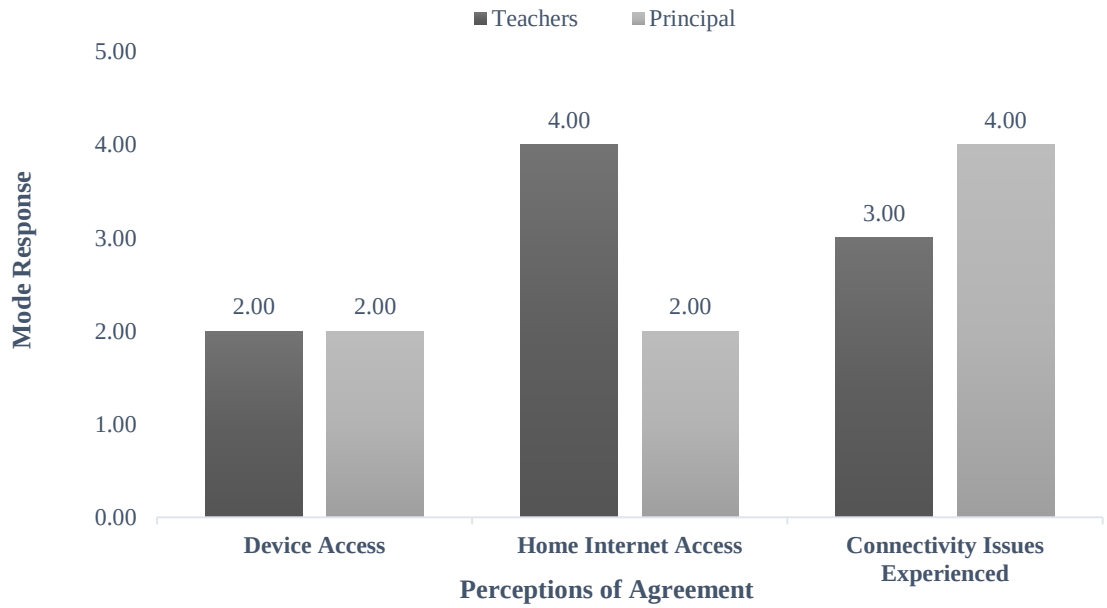
In the first category, participants were asked how well they agreed the majority of their students had access to an Internet-capable device. The results indicated the most common teacher response was somewhat agree, a response echoed by the principal (see Figure 26).

In the second category, participants were asked how well they agreed the majority of their students had access to the Internet at home. The results indicated the most common teacher response was somewhat disagree, compared to the principal response of somewhat agree (see Figure 26).

In the third category, participants were asked how well they agreed the majority of their students experienced connectivity issues that negatively impacted teaching and learning. The results indicated the most common teacher response was neither agree nor disagree, while the principal response was somewhat disagree (see Figure 26).

Figure 26

Perceptions Regarding Student Access to an Internet-Capable Device, Home Internet Access, and Experiences with Connectivity Issues



Survey Item Eight. In your opinion, to what extent would the following factors have improved the school's response to mitigating learning loss during the extended closure (range of choices offered)?

Item eight was a multi-part question consisting of three sub-questions. Participants were asked their opinions regarding how providing more devices for students, more opportunities for Internet access, and more access to digital and print resources would have improved the school's response to mitigating learning loss during the extended closure. For these questions, a Likert-type scale ranged from *strongly agree* to *strongly disagree* with five responses possible and a value assigned to each response (see Table 16).

Table 16

Scale Responses for Staff Survey Item Eight

Response	Assigned Score
Strongly Agree	1
Somewhat Agree	2
Neither Agree nor Disagree	3
Somewhat Disagree	4
Strongly Disagree	5

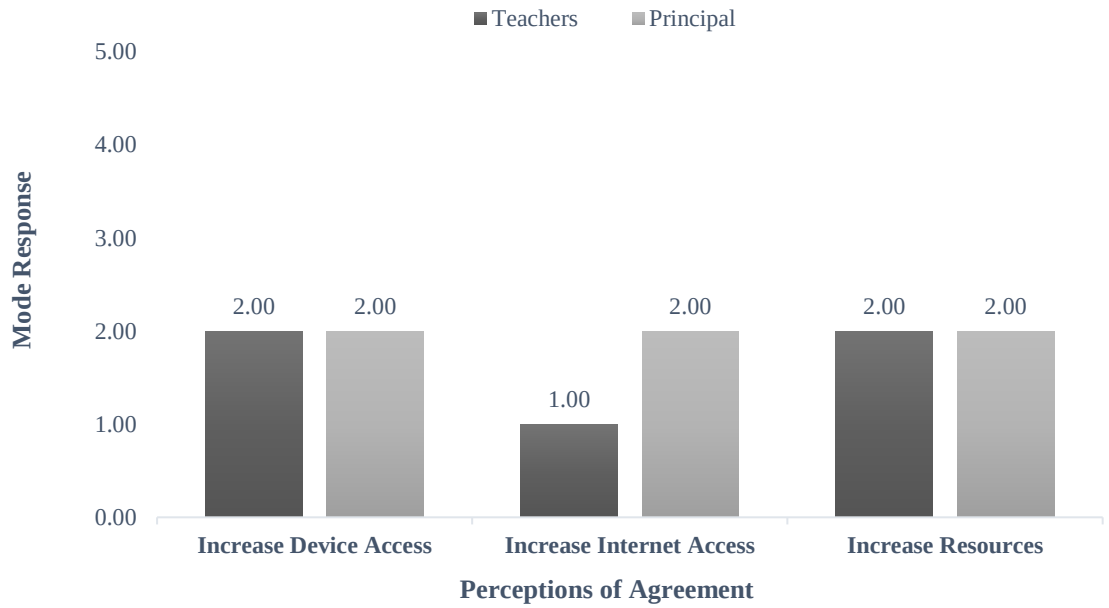
In the first category, participants were asked their opinions on whether or not providing more devices for students would have improved the school's response to mitigating learning loss during the extended closure. The results indicated the most common teacher response was somewhat agree, the same as the principal response (see Figure 27).

In the second category, participants were asked their opinions on whether or not providing more opportunities for Internet access would have improved the school's response to mitigating learning loss during the extended closure. The results indicated the most common teacher response was strongly agree, compared to the principal response of somewhat agree (see Figure 27).

In the third category, participants were asked their opinions on whether or not providing more resources, both digital and print, would have improved the school's response to mitigating learning loss during the extended closure. The results indicated the most common teacher response was somewhat agree, matching the principal response (see Figure 27).

Figure 27

Perceptions on the Benefit of Providing More Devices for Students, Increasing Internet Access, and Providing More Educational Resources



Research Question One

What are the opinions of parents, teachers, and the principal regarding the strategies implemented at a rural middle school to prevent learning loss during an extended school closure in the areas of instruction, communication, and access to technology?

Data were collected via telephone follow-up interviews and were analyzed to look for commonalities in the responses of parents, teachers, and the principal.

Interview Question One

What teaching strategies did you feel were most effective in helping your student(s) academically during the COVID-19 extended school closure?

Two parents suggested structure was important to student success. Parent 1 asserted “sticking to a schedule” was beneficial, while Parent 2 echoed the sentiment and stated, “When they did send the daily assignments, that was a good strategy instead of just clumping them all together in one email.”

Teachers and the principal gravitated toward content delivery, with the principal suggesting Zoom, Google Classroom, and “anytime we can meet virtually” as effective strategies. Teacher 2 touted, “I had pre-recorded lessons for the rest of the book.” Teacher 4 commented, “The most effective for me was just to email the students and… make sure that they had information.”

In various ways, the participants suggested communication was an effective tool during the school closure. While there was not a consensus on the topic of communication, whether instructional or informational, most respondents referenced teacher-parent or teacher-student interaction in some form or another. As noted by Teacher 3, “Whenever I could speak to individual students or their parents, that seemed to get the best results.”

Interview Question Two

What teaching strategies did you feel were least effective in helping your student(s) academically during the COVID-19 extended school closure?

A common theme among participants centered around a lack of instruction, expectation, or structure. Parent 2 expressed it bluntly by opining learning was ineffective “when there was little instruction.” Parent 4 added, “The things that were more structure[d] were easier for them to be able to complete.” The principal echoed the need for detailed instruction and expectations and specified, “Just handing them a packet and

turning them loose on it" was ineffective. Teacher 1 stated, "Probably the hardest part is just the visualization of me seeing them and them seeing me on a daily basis."

A lack of resources was another common theme among parents. Parent 1 mentioned, "So then I had to take time [to] send the request to the teacher asking for the assignment," which often meant "there was a delay so we'll roll over into the next day." According to Parent 3, "In hindsight, there could have been more educational materials sent home due to the extended length of the break." However, at least one teacher disagreed. Teacher 3 commented, "For me I had very little participation on using like textbook-type resources, online textbooks."

Interview Question Four

Part A. Please describe the communication you or your student received during the COVID-19 extended school closure: What type(s) of communication were used?

Participant responses were relatively narrow in scope yet also fairly consistent among the respondents. All four parents, the principal, and three of the teachers named email as a method of communication. All four teachers, the principal, and two parents identified phone or text as a common form of communication as well. Less common responses included regular mail, SchoolReach notifications, social media, and the school website.

Part B. Please describe the communication you or your student received during the COVID-19 extended school closure: In general, what were the topics of conversation?

Generally, participants stated the topics of conversation centered around clarification or additional directions. Three of the parents and all four teachers referenced

lessons and instructional help, with the principal simply stating “grades.” However, several respondents noted some attention was also placed on social and emotional well-being. Parent 3 explained the nature of the communication was “offering help with educational needs and just general well-being of the student.” Teacher 1 shared, “It was all math at first, but after that, it becomes just hey, how are you?”

Part C. Please describe the communication you or your student received during the COVID-19 extended school closure: What made this communication helpful or unhelpful to the success of your student?

Generally, participants found the communication to be helpful in two areas: instruction and well-being. The communication regarding assignments and instruction was appreciated by parents. Parent 1 noted, “The clarification was nice,” and Parent 4 stated, “The district did a good job trying to keep people informed.” Teacher 3 suggested the communication helped students “be more confident and completing their assignments.”

The positive impact of checking in on students was also noted by several participants. Parent 3 commented, “The teachers really cared about them.” The principal stated, “I think I was able to calm a lot of fears, help mitigate anxiety.” The lack of physical presence and the impact on students was also observed by some participants. Teacher 2 noted:

> Sometimes when they could email me and I can send them a video, or you know, whatever it was they needed. I feel like it was more personal. They felt more comfortable getting to correspond with me. It’s not like there’s a robot or something. Like that was still me. I’m still here to help them …It didn’t seem like

they had as much pressure when they were able to communicate with me personally.

Interview Question Five

Part A. From a technology perspective: What tools and/or resources did you find to be the most helpful to your student and why?

Most of the participants referenced the availability and use of an Internet-capable device as an effective resource employed during the extended shutdown. However, several of these references were indirect. For example, Parent 3 stated, "Moby Max was a great educational tool." Moby Max is a software platform that requires an Internet-capable device such as a PC, Chromebook, tablet, or phone. Similarly, Parent 4 and the principal referenced Google Meet as a helpful resource. Video conferencing tools such as Zoom and Google Meet were mentioned specifically by parents, the principal, and teachers.

High-tech options were not the only suggestions from some participants, however. Parent 1 suggested "books for guidance sheets" as a helpful resource, while Teacher 3 stated, "If I would make a PDF, they just have it right there easily visible for them to use that seemed to be more helpful."

Interview Question Five

Part B. From a technology perspective: What tools and/or resources did you find to be unhelpful or unnecessary to your student and why?

Nearly all the participants believed none of the technology tools and resources were unhelpful or unnecessary. Parent 3 quipped, "Not really any. We found all of them

to be helpful." Teacher 1 agreed, "As far as technology is concerned, I don't think there's anything that's unnecessary."

While most of the responses were positive, Parent 4 noted, "There were some website links that were sent, I think, as additional resources that could have been left out or weren't as important or effective as others." Additionally, Parent 2 stated, "We didn't have any extra devices," which indicated family members had to share.

Interview Question Six

To what extent do you feel the school's response to the COVID-19 extended school closure helped mitigate learning loss: Do you feel your student is adequately prepared to enter the next grade due to these efforts? Why or why not?

Except for one teacher, all respondents reported their students were adequately prepared to enter the next grade, although there were some caveats. Teacher 3 agreed, but clarified students were prepared "with remediation needed." Parent 2 noted, "I think depending on the subject matter." According to the principal, "Yeah, I think yes, the efforts probably helped us get over the hump or at least kind of crawl to the finish line." Parent 4 seemingly agreed with the principal and stated, "I do feel like he's able to move on because of the things that the district did and the teachers." Teacher 1 held the lone dissenting opinion and commented, "Well, unfortunately for this one, it was a no. We couldn't cover to the extent we needed to."

Research Question Two

In the opinion of parents, teachers, and the principal at a rural middle school, what strategies would better prevent learning loss during an extended school closure in the areas of instruction, communication, and access to technology?

Data were collected via telephone follow-up interviews and were analyzed to look for commonalities in the responses of parents, teachers, and the principal.

Interview Question Three

What teaching strategies not employed would have been more effective in helping your student academically during the COVID-19 extended school closure?

Several of the participants singled out video conferencing as a strategy that would have been effective to help students, but the reasons varied among respondents. Parent 3 simply wished there were more instances when virtual instruction would have taken place via video conferencing. According to Parent 3, “I think having like a Zoom-type classroom instruction would have been beneficial.” Teachers noted a lack of training on video conferencing during the extended closure. Teacher 3 commented, “I really feel like after having the Google Meet training and things like that, that that would have been a lot better.”

Teacher 4 shared, “We would have had our standard a little higher” to promote participation, an issue also observed by the principal. The principal noted a need for more synchronous learning via “a regular schedule of time to meet and go over things.” Parent 1 bluntly responded to the question of what would have improved the school’s response by stating, “If it wasn’t closed.”

Interview Question Four

Part D. Please describe the communication you or your student received during the COVID-19 extended school closure: In your opinion, what communication strategies would have been more helpful for your student?

All four teachers and one parent wished the school had incorporated more video conferencing as part of the communication plan; however, it was also recognized by several participants that the strategy may not have worked at the time. Parent 2 wanted more video conferencing with teachers but added the caveat, “If it was available then.” Teacher 1 noted, “It was all new to everyone at the time” regarding video conferencing. Teacher 4 commented, “I thought there were times when we could have incorporated some kind of Zoom or Google Meet strategy, but I also understood that there wasn’t any training for the teachers on how to do it yet.”

Parent 3 indicated video conferencing may not have been possible due to a lack of devices and specified, “Chromebooks sent home with the kids with Zoom-type instruction” would have been helpful. Parent 4 offered a simpler suggestion to improving communication and noted, “We did not receive any phone calls from the teachers individually to check-in with any of the kids, but that would have been something that would have been taken positively, I think.”

Interview Question Five

Part C. From a technology perspective: What tools and/or resources would have been more helpful if you had access to them and why?

There was no consensus among the parent participants in their responses to this question. Parent 1 suggested “books” as a beneficial resource, while Parent 2 wanted the “teacher in the classroom.” Parent 3 suggested providing “Chromebooks with Zoom” for students at home would have helped. According to Parent 4, “I think our district does a great job providing access and were willing to do anything they could to make sure we have what we needed.”

The teacher and principal responses were more cohesive, with two teachers suggesting the school incorporate Google Meet or Zoom. Providing Internet access for students at home was also mentioned by two teachers. Teacher 3 suggested providing access to a "digital textbook" for all students, and the principal stated, "Being true one-to-one" would have been an improvement.

Interview Question Seven

Part A. Overall, how satisfied are you with the school's response to the COVID-19 extended school closure in the area of: Instruction?

The responses from all participants were generally positive. Parent 3 was "very satisfied" with the school's instructional response, while Parent 2 was "moderately" pleased. Parent 4 noted, "My student was confident and able to keep going." The principal felt the school's response was "very good," while the rest of the responses were more pragmatic and muted. Teacher 1 reflected, "We did the very best we could do. I really feel like that." Similarly, Teacher 3 stated, "I would say [we did] as good as could be expected." Parent 2 summarized the tone of the responses by stating, "I mean there's always better, but we didn't know what the better was."

Interview Question Seven

Part B. Overall, how satisfied are you with the school's response to the COVID-19 extended school closure in the area of: Communication?

The responses from nearly all respondents indicated a favorable view of the school's communication during the extended closure. Parent 4 noted, "We did get plenty of communication from the school and the teachers." Parent 2 commented, "Well, I mean the SchoolReaches, the emails, I don't think we could improve it any more." The teachers

and principal offered brief, positive critiques of the school's communication. The principal characterized the response as "very good," and Teacher 1 called it "excellent." Parent 1 provided the only negative comment, noting, "It took too long to reply on the communication."

Interview Question Seven

Part C. Overall, how satisfied are you with the school's response to the COVID-19 extended school closure in the area of: Technology Access?

Most of the participants were generally positive in their critique of the school's efforts to provide technology access during the extended closure. While Parent 1 felt students "really needed more reference resources," and Teacher 3 was "not overly satisfied" with the school's efforts, the remainder of the participants presented a more pragmatic take. Teacher 2 noted, "We tried to give them Internet access." According to Parent 2, "I know what the schools did for those that didn't [have access]." However, Parent 4 offered the most comprehensive analysis:

> In this area, we have some students who don't have it [home Internet access]. But most people do have at least access to a phone, a Wi-Fi hotspot, something like that. The district also provided Wi-Fi in each facility so that parents could go use those if needed, but I feel like they did a great job trying to make sure we're prepared.

Research Question Three

What is the significant difference between the perceptions of parents and teachers regarding the strategies implemented at a rural middle school to prevent learning loss

during an extended school closure in the areas of instruction, communication, and access to technology?

Research question three originated the quantitative component of the study. The null hypothesis stated there is no significant difference between the perceptions of parents and teachers regarding the strategies of a rural middle school to prevent learning loss during an extended school closure in the areas of instruction, communication, and access to technology.

Parents and teachers were generally in agreement in their perceptions of the school's response to the extended closure; however, a few areas indicated greater disagreement. The largest differences in perceptions centered around access to Internet-capable devices and the availability of Internet access at home. Parents indicated they somewhat agreed or strongly agreed their students had access to Internet-capable devices more than the teachers, and parents somewhat agreed or strongly agreed they had home Internet available more than the teachers.

Additionally, differences appeared in perceptions regarding the frequency of teacher check-ins with students, assignment feedback, and encouragement and praise. While 17.02% of parents felt teachers never or rarely checked in on their students, none of the teachers felt the same. Similarly, 31.91% of parents felt teachers never or rarely provided feedback on student assignments, while 6.7% of teachers indicated they rarely provided feedback and 0% of teachers indicated they never provided feedback. In terms of providing praise and encouragement, teachers indicated they did so often or somewhat often more than was perceived by parents.

Further analysis of the results was deemed necessary to determine whether a significant difference existed between the perceptions of teachers and parents. Survey data were collected from parent and teacher participants, and the data from each category were summarized using descriptive statistics, specifically the mode, a central tendency measurement of the most commonly occurring value in a dataset (Bhandari, 2020a). Statistical significance was calculated using the Mann-Whitney *U* test due to the small sample sizes and because the data were ordinal and nonparametric (Fraenkel et al., 2018; Sullivan, 2017). The Mann-Whitney *U* Test assumes $\alpha = .05$ and a significant difference when $p < .05$.

The *z* score and probability determinations from the results of the test are summarized in Table 17. The *p*-values for frequency of teacher check-ins with students, frequency of teacher feedback on assignments, frequency of teacher-provided praise and encouragement to students, students with access to an Internet-capable device, and students with access to the Internet at home were all less than .05, indicating there were significant differences between parent and teacher perceptions in these categories. The null hypothesis was rejected for these categories. The *p*-values for all other categories in Table 17 were determined to be greater than .05, indicating there were not significant differences between parent and teacher responses in these areas. The null hypothesis was not rejected for these categories.

Table 17

Mann-Whitney U Test Results of Parents' and Teachers' Perceived Value of Strategies Implemented to Prevent Learning Loss During an Extended Closure

Category	*z*	*p*
Instruction during closure compared to in class	0.40	0.6892
Difficulty level of instruction during closure vs. in-class instruction	0.21	0.8337
Level of preparedness for next school year	0.14	0.8887
Factors improving mitigation of learning loss: video lectures	-1.15	0.2501
Factors improving mitigation of learning loss: increased number of assignments	0.48	0.6312
Factors improving mitigation of learning loss: decreased number of assignments	-1.03	0.3030
Factors improving mitigation of learning loss: implementing a "school day" schedule	-1.00	0.3173
Frequency teacher checked in with students	2.28	0.0226
Frequency teacher provided feedback on on assignments	2.09	0.0366
Frequency teacher provided praise and encouragement to students	3.90	0.0001
Factors improving mitigation of learning loss: increased feedback from teachers	-1.72	0.0854
Factors improving mitigation of learning loss: increased praise and encouragement	-0.52	0.6031
Factors improving mitigation of learning loss: increased communication regarding updates	0.69	0.4902
Majority of students had access to Internet-capable device	-3.31	0.0009
Majority of students had access to the Internet at home	-3.76	0.0002
Majority of students experienced connectivity issues causing negative impacts	0.57	0.5687
Factors improving mitigation of learning loss: student access to an Internet-capable device	1.66	0.0970
Factors improving mitigation of learning loss: student access to Internet	0.75	0.4533
Factors improving mitigation of learning loss: student connectivity issues and impacts	0.66	0.5093

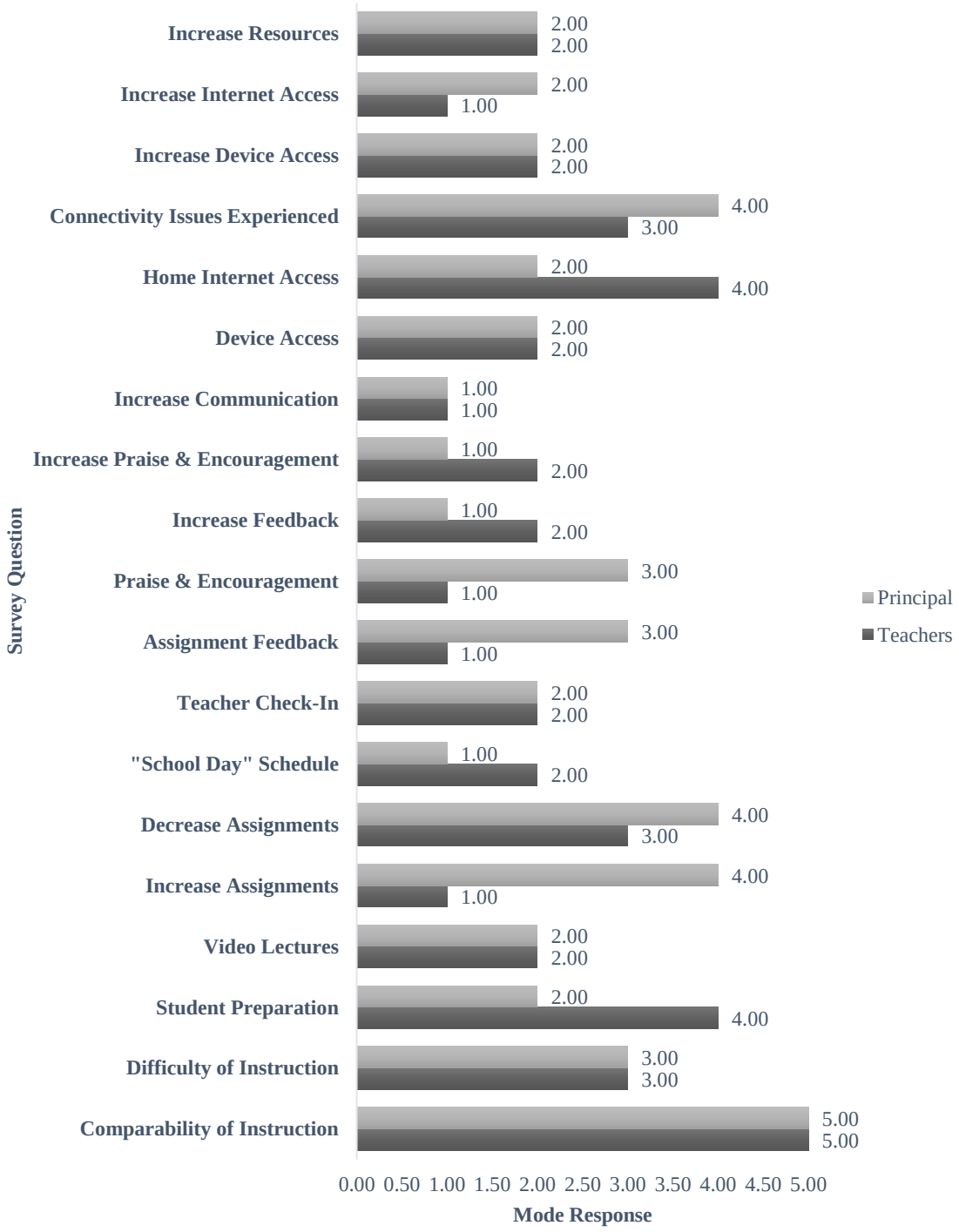
Research Question Four

What is the significant difference between the perceptions of teachers and the principal regarding the strategies implemented at a rural middle school to prevent learning loss during an extended school closure in the areas of instruction, communication, and access to technology?

The null hypothesis stated there is no significant difference between the perceptions of teachers and the principal regarding the strategies of a rural middle school to prevent learning loss during an extended school closure in the areas of instruction, communication, and access to technology. Teachers and the principal were generally in agreement in their perceptions of the school's response to the extended closure. However, a few areas indicated greater disagreement, particularly in the categories of student preparedness, the benefits of increasing the number of assignments, providing student feedback on assignments, providing praise and encouragement to students, and at-home Internet access (see Figure 28).

Figure 28

Summary of Teacher and Principal Perceptions



A deeper analysis of the results was deemed necessary to determine whether a significant difference existed between the perceptions of teachers and the principal. Statistical significance was calculated using the Kruskal-Wallis rank-sum test instead of the Mann-Whitney *U* test. Since the Mann-Whitney *U* test requires a minimum sample size of five and the principal sample size of the case study was one, The Kruskal-Wallis rank-sum test was deemed an appropriate alternative because the data were ordinal and nonparametric (Fraenkel et al., 2018). The Kruskal-Wallis rank sum test assumes $\alpha = .05$ and a significant difference when $p < .05$.

The *z* score and probability determinations from the results of the test are summarized in Table 18. All *p*-values in Table 18 were determined to be greater than .05, indicating there were not any significant differences between teacher and principal responses in these areas. The null hypothesis was not rejected for these categories, since no significant differences could be found.

Table 18

Kruskal-Wallis Test Results of Teachers' and Principal's Perceived Value of Strategies Implemented to Prevent Learning Loss During an Extended Closure

Category	*p*
Instruction during closure compared to in class	0.5714
Difficulty level of instruction during closure vs. in-class instruction	0.1316
Level of preparedness for next school year	0.0987
Factors improving mitigation of learning loss: video lectures	0.6911
Factors improving mitigation of learning loss: increased number of assignments	0.4353
Factors improving mitigation of learning loss: decreased number of assignments	0.6506
Factors improving mitigation of learning loss: implementing a "school day" schedule	0.1086
Frequency teacher checked in with students	0.8986
Frequency teacher provided feedback on on assignments	0.3917
Frequency teacher provided praise and encouragement to students	0.5144
Factors improving mitigation of learning loss: increased feedback from teachers	0.1096
Factors improving mitigation of learning loss: increased praise and encouragement	0.1420
Factors improving mitigation of learning loss: increased communication regarding updates	0.3188
Majority of students had access to Internet-capable device	0.6087
Majority of students had access to the Internet at home	0.2413
Majority of students experienced connectivity issues causing negative impacts	0.2407
Factors improving mitigation of learning loss: student access to an Internet-capable device	0.8847
Factors improving mitigation of learning loss: student access to Internet	1.0000
Factors improving mitigation of learning loss: student connectivity issues and impacts	0.8844

Summary

In Chapter Four, survey and interview data were collected and analyzed. Survey data were first analyzed according to the responses of parents and teachers, then analyzed according to the responses of teachers and the principal. Interview data were collected and analyzed using open and axial coding to address research questions one and two. For research question three, descriptive statistics were utilized to determine parent and teacher perceptions of the school's response to the extended COVID-19 closure.

Inferential statistics were applied and indicated a significant difference in the perceptions of parents and teachers in the following areas: frequency of teacher check-ins with students, frequency of teacher feedback on assignments, frequency of teacher praise and encouragement to students, access to Internet-capable devices, and access to at-home Internet. For research question four, descriptive statistics were utilized to determine teacher and principal perceptions of the school's extended closure response. The application of inferential statistics indicated there was not a significant difference between teacher perceptions and the perceptions of the principal.

Chapter Five includes a review of the findings from the results of the data and analysis presented in Chapter Four. Conclusions, based on the interpretations of these results, are discussed. Implications for practice and a discussion of how this research can aid in an improved response to future extended closures are provided. Recommendations for subsequent research are also offered.

Chapter Five: Conclusions and Implications

Extended school closures like those experienced during summer vacation and Christmas break are nothing new in public education (Pedersen, 2012). However, the COVID-19 shutdown was unique due to the length of time between physical, in-person teaching and learning, as well as the suddenness with which it began (Williams, 2020). Prior research into the causes, impacts, and remedies for learning loss during extended closures could provide insights into what lies ahead for students, parents, teachers, and administrators.

Recent researchers have predicted significant learning loss in both reading and math due to the pandemic (Kuhfeld & Tarasawa, 2020b). Many districts pivoted toward remote learning to mitigate these potential losses (Schultz & DeMers, 2020). Several districts made the shift from in-person to fully remote learning in less than a day (Midcalf & Boatwright, 2020).

The remainder of this chapter contains a review of the findings from the research, including a statistical analysis of the data and results. Conclusions are presented and organized around the research questions to provide a synthesis and interpretation of the results. Implications for practice and recommendations for future research are also discussed.

Findings

In Chapter Four, the data analysis results indicated the differences in perceptions regarding Missouri Middle School's response to the COVID-19 extended closure between two groups: parents and teachers and the principal and teachers. Data regarding Missouri Middle School's response in the areas of instruction, communication, and

technology were gathered using Likert-scale survey instruments and follow-up interview questions. The results of those findings are presented and formed the basis for the conclusions, implications for practice, and recommendations for future research that follow.

Parents and teachers were generally in agreement in their perceptions regarding instruction delivered during the extended closure. Responses to survey item one revealed neither parents nor teachers found the instruction delivered during the extended closure to be comparable to in-class learning. Additionally, the responses to survey item two indicated both groups found the difficulty of instruction to be somewhat to extremely easy. Based on the responses to survey item three, over half of parents and teachers felt students were either little prepared or not prepared at all for the upcoming school year.

Results from survey item four indicated disagreements between parents and teachers regarding the potential impact of implementing various instructional factors such as incorporating video lectures, increasing the number of assignments, decreasing the number of assignments, and providing a "school day" structure. Over 75% of parents and teachers somewhat to strongly agreed implementing video lectures into the instructional response would have been helpful. However, agreement on the potential benefit of increasing the number of assignments was split between parents (34.04% somewhat to strongly disagreed, while 31.91% somewhat agreed) and teachers (37.5% somewhat to strongly disagreed, compared to 37.5% who somewhat to strongly agreed). Parents and teachers were less certain in their perceptions on the potential benefits of decreasing the number of assignments, with over half of parents neither agreeing nor disagreeing. However, the majority of parents and teachers agreed implementing a "school day"

schedule would have been beneficial, with 65.95% of parents and over half of the teachers somewhat to strongly agreeing.

The results of survey item five, a reflection on the frequency of communication, specifically regarding teacher check-ins with students, teachers providing feedback on assignments, and teachers offering praise and encouragement to students, also revealed some discrepancies between the perceptions of parents and teachers. Parents perceived communication to be much less frequent than did teachers in every category, with the greatest discrepancy occurring around praise and encouragement. Only 53.19% of parents felt teachers offered praise and encouragement somewhat to very often, while over 90% of teachers reported the same.

Similarly, most parents and teachers indicated in survey item six they somewhat to strongly agreed providing increased feedback on assignments and increasing the frequency of praise and encouragement would have improved the school's response, with the largest discrepancy surfacing around increased feedback (82.98% of parents, compared with only 60% of teachers). However, 80% of teachers somewhat or strongly agreed providing more frequent updates and information from the school would have improved the school's response, compared with 72.34% of parents.

Relatively large discrepancies also surfaced in the parent and teacher responses to survey item seven, a reflection on access to technology. Over 90% of parents somewhat to strongly agreed to having access to an Internet-capable device compared with only half of teachers who felt the same. The perception gap was even wider regarding access to the Internet at home, with 85.11% of parents somewhat to strongly agreeing to having access

compared to only 35.71% of teachers who responded the same. However, fewer than half of parents and teachers somewhat to strongly agreed connectivity issues were a problem.

The discrepancies between parent and teacher perceptions involving technology continued in the results of survey item eight. Over 70% of teachers somewhat to strongly agreed providing more devices, providing more opportunities for Internet access, and providing more digital and print resources would have improved the school's response to mitigating learning loss. Less than half of parents somewhat to strongly agreed to the benefit of providing more devices, and only 58.7% somewhat to strongly agreed providing more opportunities for Internet access would have made an improvement. However, over 68% of parents somewhat to strongly agreed providing more digital and print resources would have been beneficial.

Teachers and principal perceptions regarding the school's response to the extended closure in the areas of instruction, communication, and technology were collected utilizing a separate survey instrument containing the same questions and Likert-type scale used to quantify the perceptions of parents and teachers. In the area of instruction, teachers and the principal were generally in agreement. Teachers and the principal strongly disagreed with the statement in survey item one that the instruction offered during the extended closure was comparable to in-class learning. Survey item two's responses revealed teachers and the principal found the difficulty of instruction provided during the extended closure compared with in-class instruction to be neither easy nor difficult. Teachers indicated in survey item three that students were a little prepared for the upcoming school year, a slight divergence from the principal's perception that students were mostly prepared.

Teacher and principal responses to survey item four were generally the same as well. Teachers and the principal somewhat agreed implementing video lectures would have improved the school's response. Teachers strongly agreed in the benefit of increasing the number of assignments, while the principal somewhat disagreed. Teachers neither agreed nor disagreed with the potential benefits of decreasing the number of assignments, again contrasting with the principal, who somewhat agreed. Teachers and the principal agreed, to varying degrees, with the benefits of implementing a "school day" schedule, with teachers somewhat agreeing and the principal strongly agreeing.

Survey item five revealed the teachers and principal agreed that teachers checked in with their students somewhat often; however, teachers reported a higher frequency of providing feedback and offering praise and encouragement. Teachers indicated providing feedback and praise very often, while the principal reported such communication took place neither often nor rarely.

While there existed disagreements in perceptions of the frequency with which teachers communicated with students and parents, survey item six indicated teachers and the principal were generally in agreement with the potential benefits of increasing the frequency of communication. Teachers somewhat agreed that increasing feedback on assignments and offering more praise and encouragement would have improved the school's response, while the principal strongly agreed. Teachers and the principal strongly agreed more frequent updates and information sent from the school would have been an improvement.

The results from survey item seven revealed teachers and the principals both somewhat agreed students had access to an Internet-capable device. Teachers somewhat

disagreed that students had Internet access at home, while the principal somewhat agreed. Teachers neither agreed nor disagreed their students experienced connectivity issues with the technology, while the principal somewhat agreed those issues were a factor.

Teachers and the principal were also generally in agreement with the potential benefits of providing more technology-related devices and resources. The responses to survey item eight indicated the teachers and principal somewhat agreed in the potential benefits of providing more devices and more digital and print resources for students. Teachers strongly agreed with the potential benefits of providing more opportunities for Internet access, while the principal somewhat agreed.

In addition to the quantitative data gathered via survey instruments, a qualitative component through voluntary follow-up interviews was implemented to add context and depth to the quantitative responses. The interview questions were designed to address the four research questions guiding the study. Responses to the interview questions were transcribed then submitted to each participant for verification and accuracy.

To seek the answer to research question one, seven interview questions were designed to gather the perceptions of parents, teachers, and the principal regarding the strategies implemented to prevent learning loss during the extended closure in the areas of instruction, communication, and access to technology. In terms of instruction, the most effective strategies for helping students academically were reported to be parent-teacher or student-teacher interaction. Teachers and the principal emphasized the effectiveness of video, phone, and email communication, while parents highlighted the benefits of structure and schedule. The least effective strategies involved a lack of instruction due to slightly varied reasons. Parents cited a lack of resources and instruction. Teachers

reported a lack of face-to-face instruction, and the principal described a lack of detail in instruction as problematic.

When describing the communication that took place during the extended closure, parents and teachers reported the majority concerned instructional help and student well-being; however, the principal reported the majority of the conversations centered on grades. Teachers, parents, and the principal all agreed that video conferencing tools, books, and other digital resources were helpful, with only one parent indicating a small percentage of the resources provided were unnecessary or unhelpful. Overall, all respondents reported the school's response adequately prepared students to enter the next grade, though parents felt the level of preparation was dependent upon the subject, and teachers felt remediation would be necessary.

To seek the answer to research question two, six interview questions were designed to gather the perceptions of parents, teachers, and the principal regarding strategies not employed that would have been effective in preventing learning loss in the areas of instruction, communication, and technology. Instructionally, parents felt more video conferencing would have been beneficial. Teachers seemingly agreed, noting more professional development and training on how to effectively deploy video conferencing and virtual instruction would have been helpful, along with demanding higher standards from students. The principal felt implementing a more regular schedule and a more synchronous learning environment would have better mitigated learning loss. In terms of communication, the theme of increased video conferencing continued. Parents and teachers felt more video conferences would have been beneficial, with parents seeing a need for more frequent phone calls as well. From a technology perspective, parents

expressed a need for more books and devices. Those views were roughly matched by the teachers and principal, who felt having more devices and Internet access at home would have helped.

Research question three was designed to determine whether or not there was a significant difference between the perceptions of parents and teachers regarding the strategies implemented to prevent learning loss in the areas of instruction, communication, and access to technology. The null hypothesis stated there is no significant difference between the perceptions of parents and teachers regarding the strategies of a rural middle school to prevent learning loss during an extended school closure in the areas of instruction, communication, and access to technology. Parents and teachers were generally in agreement in their perceptions of the school's response to the extended school closure, with a few caveats.

The most significant disagreements appeared to surface in the following areas: access to Internet-capable devices, availability of Internet access at home, frequency of teacher check-ins with students, frequency of assignment feedback, and frequency of encouragement and praise. Parents somewhat or strongly agreed their students had access to devices 41.49% more often than teachers and somewhat or strongly agreed their students had home Internet available 49.40% more often than teachers. No teachers reported they never or rarely checked in with students, while 17.02% of parents stated otherwise. Nearly one-third of parents (31.91%) felt teachers never or rarely provided feedback on student assignments, while 6.7% of teachers reported they rarely provided feedback and none reported never providing feedback. Almost all teachers reported

offering encouragement and praise very or somewhat often (93.34%), while only 53.20% of parents reported the same.

The Mann-Whitney *U* test was used to calculate statistical significance due to the small sample sizes and because the data were ordinal and nonparametric; the Mann-Whitney *U* assumes $\alpha = .05$ and a significant difference when $p < .05$. (Fraenkel et al., 2018; Sullivan, 2017). All categories were tested to determine significant differences, with the following four categories resulting in a *p*-value less than .05: frequency teacher provided feedback on assignments, frequency teacher provided praise and encouragement to students, majority of students had access to Internet-capable device, and majority of students had access to the Internet at home. The null hypothesis was rejected for these categories. All other categories resulted in a *p*-value greater than .05, indicating there were not any significant differences between parent and teacher responses in those categories. The null hypothesis was not rejected for those categories.

Research question four was designed to determine whether or not there was a significant difference between the perceptions of teachers and the principal regarding the strategies implemented to prevent learning loss in the areas of instruction, communication, and access to technology. The null hypothesis stated there is no significant difference between the perceptions of teachers and the principal regarding the strategies of a rural middle school to prevent learning loss during an extended school closure in the areas of instruction, communication, and access to technology. Teachers and the principal were generally in agreement in their perceptions of the school's response to the extended school closure, with a few exceptions.

Categories with the greatest perceived disagreements included student preparedness, benefits of increasing the number of assignments, frequency of providing student feedback on assignments, frequency of providing praise and encouragement to students, and availability of Internet access at home. The Kruskal-Wallis rank-sum test was used to calculate statistical significance due to the principal sample size of one and because the data were ordinal and nonparametric (Fraenkel et al., 2018). The Kruskal-Wallis rank sum test assumes $\alpha = .05$ and a significant difference when $p < .05$ (Fraenkel et al., 2018). All categories resulted in *p*-values greater than .05, indicating there were not any significant differences between teacher and principal responses in any category. The null hypothesis was not rejected for all categories.

Conclusions

Researchers who conducted the Beginning School Study, a long-term longitudinal study that began in 1982, determined students experience similar academic gains during the regular school year regardless of their SES (Alexander et al., 2007b). However, students with a lower SES appear to regress during the summer months, particularly when compared with their more affluent peers, resulting in an increasingly widening achievement gap (Alexander et al., 2007b). A possible explanation lies in the "faucet theory," a term Entwisle et al. (2001) coined which describes how educational resources flow to all students equally during the school year but slow or stop completely for poorer students during the summer months (Entwisle et al., 2001; Pitcock, 2018). The extended break caused by the COVID-19 shutdown potentially resulted in the turning off of this theoretical "faucet," which served as the theoretical framework guiding this study.

To respond to research question one, the perceptions of parents, teachers, and the principal regarding strategies implemented at a rural middle school to prevent learning loss during an extended school closure in the areas of instruction, communication, and access to technology were compared. Parents, teachers, and the principal strongly agreed the instruction provided during the COVID-19 shutdown was not comparable to in-class learning, particularly regarding rigor and preparation for the following school year. While parents appreciated the efforts of teachers to communicate with their students, a lack of familiarity and training in the use of video conferencing made the effectiveness of distance learning problematic. However, there was a calming effect expressed by all parties related to the benefits of video conferences from a social-emotional standpoint. The technology utilized during the shutdown was widely appreciated and credited by all participants as being the most helpful tool for mitigating learning loss.

To respond to research question two, the opinions of parents, teachers, and the principal regarding which strategies could better prevent learning loss during an extended school closure in the areas of instruction, communication, and access to technology were examined. While implementing video lectures was generally agreed upon by all parties as a mitigation strategy that would have improved the school's response, adjusting the number of assignments did not generate any sort of consensus. Providing more structure in the form of a school day-type schedule was generally favored by the respondents, particularly the parents and principal. Similarly, increasing the frequency of video conferences and phone calls was perceived as being helpful from a communication standpoint, but no consensus could be found regarding which technological resources would have better prevented learning loss during the extended closure. In general, the

respondents were pragmatic in their responses. They acknowledged there could have been improvements to the school's response, but there was no clear consensus on what those improvements might have been. A mutual appreciation of the efforts put forth by all parties was apparent.

To respond to research question three, the differences in perceptions between parents and teachers regarding the strategies implemented at a rural middle school to prevent learning loss during an extended closure in the areas of instruction, communication, and technology were addressed. Inferential statistics in the form of the Mann-Whitney *U* test revealed significant differences in the frequency of teacher feedback and the frequency of teacher-provided praise and encouragement. Significant differences were also found in the perceptions of student access to Internet-capable devices and student access to the Internet at home. In general, teachers overestimated (or over-reported) their frequency of communication with students and underestimated the prevalence of device and Internet access at home.

To respond to research question four, the differences in perceptions between teachers and the principal regarding the strategies implemented at a rural middle school to prevent learning loss during an extended school closure in the areas of instruction, communication, and access to technology were compared. Inferential statistics in the form of the Kruskal-Wallis rank-sum test determined there were not any significant differences between the perceptions of teachers and the principal; therefore, the null hypothesis was not rejected. While not statistically significant, perceived differences did exist, particularly regarding increasing the number of assignments. Teachers were

strongly in favor of requiring more work from students, while the principal somewhat disagreed with the potential efficacy of the strategy.

In conclusion, differences existed in the perceptions of parents, teachers, and the principal regarding the school's response to the extended school closure and the strategies that could have been implemented to better prevent learning loss, but there were areas of general agreement as well. Instruction delivered remotely was widely viewed to be inferior to in-class instruction. Communication between the school and the students and parents was valued and appreciated. Technology, and access to it, were both perceived as important to the learning process during the extended closure. The differences in teacher, parent, and principal perceptions uncovered during the study centered on rigor and format of instruction, frequency of communication, and the prevalence of student access to the Internet and Internet-capable devices at home.

Implications for Practice

Several implications for future practice emerged based on the research findings. Teachers, parents, and the principal expressed agreement regarding the school's response to extended closure in the areas of instruction, communication, and technology in several categories. They also expressed disagreement in a few categories, particularly regarding how to modify instruction, the frequency of communication, and access to technology and the Internet. The areas of agreement and disagreement offer implications for practice in the future.

The utilization of video conferencing was widely considered a valuable tool for mitigating learning loss; however, teachers expressed a need for more professional development in how to harness the capabilities of these platforms more effectively.

Similarly, parents expressed a desire for more frequent use of these platforms during the extended closure. A comprehensive, structured, and progressive approach to teacher training on using digital platforms could impact several areas noted in the study. If teachers had more professional development in the use of video conferencing software, they likely would become more comfortable using it. Not only could this improve the efficacy of the instruction provided via the software, but training could also lead to more frequent use to address issues mentioned by teachers and parents in the study.

In addition to sustained and progressive training on the use of video conferencing software, professional development should be provided for teachers regarding the pedagogy necessary to teach virtually. Study findings indicated a general agreement in a lack of rigor and a belief that virtual instruction delivered was not comparable to in-class instruction, but no clear consensus on how to address these deficits was reached. Investing in research-based, high-quality virtual instruction pedagogy training on a content-specific basis could close the rigor gap between in-person and remote instruction, leading to more effective learning loss mitigation and improved preparation for future extended school closures.

Communication among the school, parents, and students was an area of statistically significant difference noted in the findings of the study. Teachers indicated communicating much more frequently with students and parents than the parents and principal perceived, particularly regarding the frequency of assignment feedback and offering encouragement or praise. While many schools encourage teachers to maintain a communication log, it is unclear how many schools monitor the frequency of those communications. Requiring teachers to meet a benchmark number of parent contacts per

term would allow for a quantifiable analysis of teacher-parent communication frequency. Furthermore, requiring descriptive feedback on most student assignments, and including this requirement as part of the teacher evaluation process, could positively impact the frequency of communication and the quality of instruction. Parents and students could be surveyed to guide and inform efforts to improve perceived gaps in communication.

Significant differences existed in the perceived availability and access to the Internet at home and to Internet-capable devices. Teachers, particularly in rural communities, often lament lack of student devices and Internet access, which could lead to a decreased emphasis on the measures previously noted in this section. Accurately assessing home Internet penetration and access to devices via digital, print, and phone surveys, then adjusting content delivery based on the results, could lead to a more effective response to future extended closures. Data generated from these surveys could also inform and direct the decision-making process regarding 1:1 technology initiatives, which could potentially impact any real or perceived digital divides.

Recommendations for Future Research

In this study, the perceptions of parents, teachers, and the principal of a rural middle school were elicited regarding the school's response to the COVID-19 extended closure in the areas of instruction, communication, and technology. A mixed-method design was implemented, utilizing quantitative and qualitative data and analyses. After reviewing the responses and recommendations from participants, several recommendations for future research are appropriate.

The scope of the study was limited to one rural middle school. Subsequent research could expand into multiple schools within a district or multiple rural middle

schools located within a defined geographic area. Replicating the study in multiple locales would aid in assessing the validity of the results and the accuracy of the conclusions due to increases in teacher, parent, and principal sample sizes. Similarly, replicating the study in an urban middle school could provide useful data for comparison.

No provision was made in this study to use student assessment data prior to the extended school closure compared with assessment data from the following school year. An additional research question addressing this component would have allowed for a quantitative analysis, using the Chi-square test of independence, of learning loss. The assessment data could be collected on a student-student, grade level-grade level, or content area-content area basis, allowing for a more granular analysis.

Research questions one and two included a qualitative component via follow-up interviews with volunteer respondents. From interview results, video conferencing emerged as a frequently mentioned mitigation tool by teachers, parents, and the principal in all three areas of emphasis: instruction, communication, and access to technology. An additional question added to the quantitative component of the study regarding the effectiveness and implementation of video conferencing in each of those categories could have further impacted the findings for these research questions.

Summary

In Chapters One and Two, research was reviewed about summer slide, the real or perceived academic regression observed in students during the extended break most students experience during the summer between grade levels (Webber-Bey, 2019). This phenomenon, observed and studied as far back as 1906 (Pitcock, 2018; White, 1906), has been studied by researchers via progressively expanding formats and methodologies over

the past century (Alexander et al., 2007a; Marakoff, 2021; Mulligan et al., 2019; von Hippel, 2019) and continuing into the present day (Kuhfeld & Tarasawa, 2020b). From this research emerged the theoretical framework underpinning this study known as the faucet theory (Entwisle et al., 2001).

The faucet theory is based on the concept that all educational resources provided to students during the school year can be thought of as a metaphorical flow of water produced from a spout (Entwisle et al., 2001; Pitcock, 2018). While school is in session, educational resources flow equally and steadily to all students but can be slowed or turned off completely when school is closed (Pitcock, 2018; Quinn & Polikoff, 2017). Without access to resources, achievement gaps can form (Quinn & Polikoff, 2017); it can be postulated the longer the flow of resources is restricted, the greater the learning loss.

Summer break is a known, planned-for, and usually anticipated hiatus from public education, typically spanning approximately six weeks (Cooper, 2003). The COVID-19 pandemic forced the closing of in-class instruction in all Missouri schools starting on March 21, 2020, and continuing for the remainder of the 2019–2020 academic year (Patrick & Erickson, 2020, p. 2). This resulted in the gap between seated, in-person learning growing from the typical six weeks to approximately 20 weeks. The purpose of this study was to examine the response of a rural middle school to this extended closure and determine which strategies implemented, if any, were perceived to be successful in mitigating learning loss during the extended closure.

Four research questions and two hypotheses guided this study, which utilized an embedded design mixed-method approach. Quantitative data were generated from an online survey consisting of questions utilizing a five-point Likert-type scale. The

quantitative data were analyzed using the Mann-Whitney *U* test and the Kruskal-Wallis rank-sum test to check for statistical significance. Then, qualitative data were generated from follow-up interviews, which provided context and support to the quantitative survey data. Participant responses were grouped into categories and themes and analyzed for correlation using open and axial coding.

A review of the findings indicated parents, teachers, and the principal reported instruction provided during the extended school closure was not comparable to in-person learning. Participants reported instructional content delivered during the extended closure to be easier than in-person content and overall felt students were little prepared or not prepared at all for the upcoming school year. Implementing video conferencing was the most referenced tool for mitigating learning loss and for communication. Inferential statistics, specifically the Mann-Whitney *U* test, revealed significant differences between the perceptions of parents and teachers in the following areas: teacher-provided feedback on assignments, teacher-provided praise and encouragement, student access to Internet-capable devices, and student access to the Internet at home. Analysis of teacher and principal perceptions using the Kruskal-Wallis rank-sum test revealed no significant differences.

Further analysis of the findings led to several conclusions and implications for practice. The most widely cited tool for mitigating learning loss was the implementation of video conferencing software, though the execution was lacking. Teachers need more professional development on the effective use of video conferencing software as well as training in pedagogy for providing distance learning.

Communication between the school and parents was also a concern, particularly in the form of feedback and praise. Teachers should make assignment feedback and parent contact a priority, and administrators should monitor fidelity to improve in this area. Finally, there were gaps between school employees and parents in perceptions regarding access to the Internet and Internet-capable devices, with parents reporting far more access than indicated by the teachers and principal. Accurately assessing the availability and access to devices and Internet service is an important component in designing and implementing distance learning curriculum and planning for potential 1:1 technology initiatives. By implementing these suggestions, teachers, parents, and the administrator should better mitigate potential learning loss in the event of a future extended closure, including closures brought about by inclement weather or a localized COVID-19 outbreak.

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Appendix A

Survey Items – Parent

Extended Closure Learning Loss Mitigation

1) In general, how well do you agree with the following statement: "The instruction my child received during the extended closure was comparable to the instruction my child received from in-class learning."

    a) Strongly Agree
    b) Somewhat Agree
    c) Neither Agree nor Disagree
    d) Somewhat Disagree
    e) Strongly Disagree

2) In general, compared to in-classroom instruction, the instruction my child received during the extended closure was:

    a) Extremely Difficult
    b) Somewhat Difficult
    c) Neither Easy nor Difficult
    d) Somewhat Easy
    e) Extremely Easy

3) After completing the assignments assigned during the extended closure, I feel my child is _____ for the next school year.

    a) Extremely Prepared
    b) Mostly Prepared
    c) Moderately Prepared
    d) A Little Prepared
    e) Not Prepared at All

4) How often did you experience the following:

    a) The teacher frequently checked in with my child.

        i) Very Often
        ii) Somewhat Often
        iii) Neither Often nor Rarely
        iv) Rarely
        v) Never

b) My child received feedback from the teacher(s) on assignments.

i) Very Often
ii) Somewhat Often
iii) Neither Often nor Rarely
iv) Rarely
v) Never

c) My child received praise and encouragement from the teacher(s).

i) Very Often
ii) Somewhat Often
iii) Neither Often nor Rarely
iv) Rarely
v) Never

5) In general, how well do you agree with the following statements:

a) My child had access to an Internet-capable device.

i) Strongly Agree
ii) Somewhat Agree
iii) Neither Agree nor Disagree
iv) Somewhat Disagree
v) Strongly Disagree

b) My child had access to the Internet at home.

i) Strongly Agree
ii) Somewhat Agree
iii) Neither Agree nor Disagree
iv) Somewhat Disagree
v) Strongly Disagree

c) My child experienced connectivity issues that negatively impacted teaching and learning.

i) Strongly Agree
ii) Somewhat Agree
iii) Neither Agree nor Disagree
iv) Somewhat Disagree
v) Strongly Disagree

6) In your opinion, to what extent would the following factors have improved the school's response to mitigating learning loss during the extended closure?

   a) Video Lectures from the Teacher

      i) Strongly Agree
      ii) Somewhat Agree
      iii) Neither Agree nor Disagree
      iv) Somewhat Disagree
      v) Strongly Disagree

   b) Increase the number of assignments

      i) Strongly Agree
      ii) Somewhat Agree
      iii) Neither Agree nor Disagree
      iv) Somewhat Disagree
      v) Strongly Disagree

   c) Decrease the number of assignments

      i) Strongly Agree
      ii) Somewhat Agree
      iii) Neither Agree nor Disagree
      iv) Somewhat Disagree
      v) Strongly Disagree

   d) Implementing a "school day" schedule

      i) Strongly Agree
      ii) Somewhat Agree
      iii) Neither Agree nor Disagree
      iv) Somewhat Disagree
      v) Strongly Disagree

7) In your opinion, to what extent would the following factors have improved the school's response to mitigating learning loss during the extended closure?

   a) Increased feedback from the teacher on assignments

      i) Strongly Agree
      ii) Somewhat Agree
      iii) Neither Agree nor Disagree
      iv) Somewhat Disagree
      v) Strongly Disagree

   b) Increased praise and encouragement from the teacher

      i) Strongly Agree
      ii) Somewhat Agree
      iii) Neither Agree nor Disagree
      iv) Somewhat Disagree
      v) Strongly Disagree

   c) Increased communication regarding updates and information from the school

      i) Strongly Agree
      ii) Somewhat Agree
      iii) Neither Agree nor Disagree
      iv) Somewhat Disagree
      v) Strongly Disagree

8) In your opinion, to what extent would the following factors have improved the school's response to mitigating learning loss during the extended closure?

   a) Provided more devices for students

      i) Strongly Agree
      ii) Somewhat Agree
      iii) Neither Agree nor Disagree
      iv) Somewhat Disagree
      v) Strongly Disagree

b) Provided more opportunities for Internet access

   i) Strongly Agree
   ii) Somewhat Agree
   iii) Neither Agree nor Disagree
   iv) Somewhat Disagree
   v) Strongly Disagree

c) Provided more access to resources, both digitally and in print

   i) Strongly Agree
   ii) Somewhat Agree
   iii) Neither Agree nor Disagree
   iv) Somewhat Disagree
   v) Strongly Disagree

Appendix B

Survey Items – Teacher/Principal

Extended Closure Learning Loss Mitigation

1) In general, how well do you agree with the following statement: "The instruction my students received during the extended closure was comparable to the instruction my students received from in-class learning."

    a) Strongly Agree
    b) Somewhat Agree
    c) Neither Agree nor Disagree
    d) Somewhat Disagree
    e) Strongly Disagree

2) In general, compared to in-classroom instruction, the instruction my students received during the extended closure was:

    a) Extremely Difficult
    b) Somewhat Difficult
    c) Neither Easy nor Difficult
    d) Somewhat Easy
    e) Extremely Easy

3) After completing the assignments assigned during the extended closure, I feel my students are _____ for the next school year.

    a) Extremely Prepared
    b) Mostly Prepared
    c) Moderately Prepared
    d) A Little Prepared
    e) Not Prepared at All

4) How often did you perform the following:

    a) I frequently checked in with my students.

        i) Very Often
        ii) Somewhat Often
        iii) Neither Often nor Rarely
        iv) Rarely
        v) Never

b) I provided feedback on my students' assignments.

i) Very Often
ii) Somewhat Often
iii) Neither Often nor Rarely
iv) Rarely
v) Never

c) I provided praise and encouragement to my students.

i) Very Often
ii) Somewhat Often
iii) Neither Often nor Rarely
iv) Rarely
v) Never

5) In general, how well do you agree with the following statements:

a) The majority of my students had access to an Internet-capable device.

i) Strongly Agree
ii) Somewhat Agree
iii) Neither Agree nor Disagree
iv) Somewhat Disagree
v) Strongly Disagree

b) The majority of my students had access to the Internet at home.

i) Strongly Agree
ii) Somewhat Agree
iii) Neither Agree nor Disagree
iv) Somewhat Disagree
v) Strongly Disagree

c) The majority of my students experienced connectivity issues that negatively impacted teaching and learning.

i) Strongly Agree
ii) Somewhat Agree
iii) Neither Agree nor Disagree
iv) Somewhat Disagree
v) Strongly Disagree

6) In your opinion, to what extent would the following factors have improved the school's response to mitigating learning loss during the extended closure?

   a) Video Lectures from the Teacher

      i) Strongly Agree
      ii) Somewhat Agree
      iii) Neither Agree nor Disagree
      iv) Somewhat Disagree
      v) Strongly Disagree

   b) Increase the number of assignments

      i) Strongly Agree
      ii) Somewhat Agree
      iii) Neither Agree nor Disagree
      iv) Somewhat Disagree
      v) Strongly Disagree

   c) Decrease the number of assignments

      i) Strongly Agree
      ii) Somewhat Agree
      iii) Neither Agree nor Disagree
      iv) Somewhat Disagree
      v) Strongly Disagree

   d) Implementing a "school day" schedule

      i) Strongly Agree
      ii) Somewhat Agree
      iii) Neither Agree nor Disagree
      iv) Somewhat Disagree
      v) Strongly Disagree

7) In your opinion, to what extent would the following factors have improved the school's response to mitigating learning loss during the extended closure?

   a) Increased feedback from the teacher on assignments

      i) Strongly Agree
      ii) Somewhat Agree
      iii) Neither Agree nor Disagree
      iv) Somewhat Disagree
      v) Strongly Disagree

   b) Increased praise and encouragement from the teacher

      i) Strongly Agree
      ii) Somewhat Agree
      iii) Neither Agree nor Disagree
      iv) Somewhat Disagree
      v) Strongly Disagree

   c) Increased communication regarding updates and information from the school

      i) Strongly Agree
      ii) Somewhat Agree
      iii) Neither Agree nor Disagree
      iv) Somewhat Disagree
      v) Strongly Disagree

8) In your opinion, to what extent would the following factors have improved the school's response to mitigating learning loss during the extended closure?

   a) Provided more devices for students

      i) Strongly Agree
      ii) Somewhat Agree
      iii) Neither Agree nor Disagree
      iv) Somewhat Disagree
      v) Strongly Disagree

b) Provided more opportunities for Internet access

   i) Strongly Agree
   ii) Somewhat Agree
   iii) Neither Agree nor Disagree
   iv) Somewhat Disagree
   v) Strongly Disagree

c) Provided more access to resources, both digitally and in print

   i) Strongly Agree
   ii) Somewhat Agree
   iii) Neither Agree nor Disagree
   iv) Somewhat Disagree
   v) Strongly Disagree

Appendix C

Interview Questions – Parent

This interview will take approximately 45 minutes and consists of a total of 20 questions to include any sub-questions.

1. What teaching strategies did you feel were most effective in helping your student(s) academically during the COVID-19 extended school closure?

2. What teaching strategies did you feel were the least effective in helping your student(s) academically during the COVID-19 extended school closure?

3. What teaching strategies (not employed) would have been more effective in helping your student(s) academically during the COVID-19 extended school closure?

4. Please describe the communication you or your student(s) received during the COVID-19 extended school closure:
    a. What types of communication were used?
    b. In general, what were the topics of the communication?
    c. What made the communication helpful or unhelpful to the success of your student(s)?
    d. In your opinion, what communication strategies would have been more helpful for your student(s)?

5. From a technology perspective:
    a. What tools and/or resources did you find to be the most helpful for your student(s)?
        i. Why?
    b. What tools and/or resources did you find to be unhelpful or unnecessary?
        i. Why?
    c. What tools and/or resources would have been more helpful if you had access to them?
        i. Why?

6. To what extent do you feel the school's response to the COVID-19 extended school closure helped mitigate learning loss?
    a. Do you feel your student is adequately prepared to enter the next grade due to these efforts?
        i. Why or why not?

7. Overall, how satisfied are you with the school's response to the COVID-19 extended school closure in the area of:
    a. Instruction?
    b. Communication?
    c. Technology Access?

Finally, are there any other items you would like to share about the school's strategies to prevent learning loss during the COVID-19 extended school closure?

Thank you for your time and participation.

Appendix D

Interview Questions – Principal

This interview will take approximately 45 minutes and consists of a total of 20 questions to include any sub-questions.

1. What teaching strategies did you feel were most effective in helping your students academically during the COVID-19 extended school closure?

2. What teaching strategies did you feel were the least effective in helping your students academically during the COVID-19 extended school closure?

3. What teaching strategies (not employed) would have been more effective in helping your students academically during the COVID-19 extended school closure?

4. Please describe the communication between you and your students/parents during the COVID-19 extended school closure:
    a. What type(s) of communication did you employ?
    b. In general, what were the topics of the communication?
    c. What made this communication helpful or unhelpful to the success of your students?
    d. In your opinion, what communication strategies would have been more helpful for your students?

5. From a technology perspective:
    a. What tools and/or resources did you find to be the most helpful for your students?
        i. Why?
    b. What tools and/or resources did you find to be unhelpful or unnecessary?
        i. Why?
    c. What tools and/or resources would have been more helpful if your students had access to them?
        i. Why?

6. To what extent do you feel the school's response to the COVID-19 extended school closure helped mitigate learning loss?
    a. Do you feel your students are adequately prepared to enter the next grade due to these efforts?
        i. Why or why not?

7. Overall, how satisfied are you with the school's response to the COVID-19 extended school closure in the area of:
    a. Instruction?
    b. Communication?
    c. Technology Access?

Finally, are there any other items you would like to share about the school's strategies to prevent learning loss during the COVID-19 extended school closure?

Thank you for your time and participation.

Appendix E

Interview Questions – Teacher

This interview will take approximately 45 minutes and consists of a total of 20 questions to include any sub-questions.

1. What teaching strategies did you feel were most effective in helping your students academically during the COVID-19 extended school closure?

2. What teaching strategies did you feel were the least effective in helping your students academically during the COVID-19 extended school closure?

3. What teaching strategies (not employed) would have been more effective in helping your students academically during the COVID-19 extended school closure?

4. Please describe the communication between you and your students/parents during the COVID-19 extended school closure:
    a. What type(s) of communication did you employ?
    b. In general, what were the topics of the communication?
    c. What made this communication helpful or unhelpful to the success of your students?
    d. In your opinion, what communication strategies would have been more helpful for your students?

5. From a technology perspective:
    a. What tools and/or resources did you find to be the most helpful for your students?
        i. Why?
    b. What tools and/or resources did you find to be unhelpful or unnecessary?
        i. Why?
    c. What tools and/or resources would have been more helpful if your students had access to them?
        i. Why?

6. To what extent do you feel the school's response to the COVID-19 extended school closure helped mitigate learning loss?
    a. Do you feel your students are adequately prepared to enter the next grade due to these efforts?
        i. Why or why not?

7. Overall, how satisfied are you with the school's response to the COVID-19 extended school closure in the area of:
    a. Instruction?
    b. Communication?
    c. Technology Access?

Finally, are there any other items you would like to share about the school's strategies to prevent learning loss during the COVID-19 extended school closure?

Thank you for your time and participation.

Appendix F

IRB Approval

Date: 1-27-2021

IRB #: IRB-21-85
Title: The Response of a Rural Missouri Middle School to the COVID-19 Pandemic: A Case Study on Instruction, Communication, and Access to Technology
Creation Date: 1-14-2021
End Date:
Status: Approved
Principal Investigator: Christian Meier
Review Board: SC Institutional Review Board
Sponsor:

Study History

Submission Type	Review Type	Decision
Initial	Exempt	Exempt

Key Study Contacts

Member Sherry DeVore	**Role** Co-Principal Investigator	**Contact** SDevore@lindenwood.edu
Member Christian Meier	**Role** Principal Investigator	**Contact** CSM139@lindenwood.edu
Member Christian Meier	**Role** Primary Contact	**Contact** CSM139@lindenwood.edu

Appendix G

Letter of Participation

Parent Survey

Date:

My name is Christian Meier, and I am pursuing a doctoral degree at Lindenwood University in Educational Administration. You are invited to take part in this research study, which I am conducting as a part of the requirements of my degree. The title of my study is *The Response of a Rural Missouri Middle School to the COVID-19 Pandemic: A Case Study of Instruction, Communication, and Access to Technology*.

The purpose of this study is to examine the opinions and perceptions of parents, teachers, and the principal of a rural Missouri middle school regarding the school's response to the COVID-19 pandemic. Approximately 241 parents will be invited to participate in this study. If you choose to participate, you will be asked to complete an online survey about your perceptions of the strategies implemented by the school to prevent learning loss, especially in the areas of instruction, communication, and access to technology, as well as your opinions regarding which strategies, if any, would have been more effective.

The information will be presented in a dissertation in which your identity will not be revealed. All data collected will be stored securely for three years after the conclusion of the study and then destroyed.

I do not anticipate any risk associated with your participation in this research study. Participation in this project is voluntary. You are free to withdraw at any time, and there will be no penalty for doing so.

At the end of the survey, you will be asked if you are interested in participating in an additional interview. This interview will take place via phone or video chat to maintain social distancing guidelines. We will discuss in greater depth and detail your perceptions regarding the school's response to the COVID-19 pandemic, including your suggestions on how to improve upon those responses. If you are willing to volunteer, please contact Christian Meier at [redacted] to schedule a day and time. The first four volunteers will be selected.

If you would like to participate in this study, please click on the link shown below to access the survey.

Thank you for your time,

Christian Meier
Doctoral Student

Link to Survey

Appendix H

Letter of Participation

Teacher/Principal Survey

Date:

My name is Christian Meier, and I am pursuing a doctoral degree at Lindenwood University in Educational Administration. You are invited to take part in this research study, which I am conducting as a part of the requirements of my degree. The title of my study is *The Response of a Rural Missouri Middle School to the COVID-19 Pandemic: A Case Study on Instruction, Communication, and Access to Technology*.

The purpose of this study is to examine the opinions and perceptions of parents, teachers, and the principal of a rural Missouri middle school regarding the school's response to the COVID-19 pandemic. Approximately 21 participants will be invited to participate in this study. If you choose to participate, you will be asked to complete an online survey about your perceptions of the strategies implemented by the school to prevent learning loss, especially in the areas of instruction, communication, and access to technology, as well as your opinions regarding which strategies, if any, would have been more effective.

The information will be presented in a dissertation in which your identity will not be revealed. All data collected will be stored securely for three years after the conclusion of the study and then destroyed.

I do not anticipate any risk associated with your participation in this research study. Participation in this project is voluntary. You are free to withdraw at any time, and there will be no penalty for doing so.

At the end of the survey, you will be asked if you are interested in participating in an additional interview. This interview will take place via phone or video chat to maintain social distancing guidelines. We will discuss in greater depth and detail your perceptions regarding the school's response to the COVID-19 pandemic, including your suggestions on how to improve upon those responses. If you are willing to volunteer, please contact Christian Meier at [redacted] to schedule a day and time. The first four volunteers will be selected.

If you would like to take part in this study, please click on the link shown below to access the survey.

Thank you for your time,

Christian Meier
Doctoral Student

Link to Survey

Appendix I

LINDENWOOD

Research Information Sheet

Parent Survey

You are being asked to participate in a research study. We are conducting this study to examine the opinions and perceptions of parents of a rural Missouri middle school regarding the school's response to the COVID-19 pandemic. Participants will be asked to complete a survey about their perceptions of the strategies implemented by the school to prevent learning loss, especially in the areas of instruction, communication, and access to technology, as well as their opinions regarding which strategies, if any, would have been more effective. It will take about 10 minutes to complete this survey.

Your participation is voluntary. You may choose not to participate or withdraw at any time.

There are no risks from participating in this project. There are no direct benefits for you participating in this study.

We will not collect any data which may identify you.

We will do everything we can to protect your privacy. We do not intend to include information that could identify you in any publication or presentation. Any information we collect will be stored by the researcher in a secure location. The only people who will be able to see your data include members of the research team, qualified staff of Lindenwood University, and representatives of state or federal agencies.

Who can I contact with questions?

If you have concerns or complaints about this project, please use the following contact information:

Christian Meier – csm139@lindenwood.edu

Dr. Sherry DeVore – sdevore@lindenwood.edu

If you have questions about your rights as a participant or concerns about the project and wish to talk to someone outside the research team, you can contact Michael Leary (Director - Institutional Review Board) at 636-949-4730 or mleary@lindenwood.edu.

Appendix J

LINDENWOOD

Research Information Sheet

Teacher/Principal Survey

You are being asked to participate in a research study. We are conducting this study to examine the opinions and perceptions of teachers and a principal of a rural Missouri middle school regarding the school's response to the COVID-19 pandemic. Participants will be asked to complete a survey about their perceptions of the strategies implemented by the school to prevent learning loss, especially in the areas of instruction, communication, and access to technology, as well as their opinions regarding which strategies, if any, would have been more effective. It will take about 10 minutes to complete this survey.

Your participation is voluntary. You may choose not to participate or withdraw at any time.

There are no risks from participating in this project. There are no direct benefits for you participating in this study.

We will not collect any data which may identify you.

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Christian Meier – csm139@lindenwood.edu

Dr. Sherry DeVore – sdevore@lindenwood.edu

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Appendix K

LINDENWOOD

Research Information Sheet

Parent Interview

You are being asked to participate in a research study. We are conducting this study to examine the opinions and perceptions of parents of a rural Missouri middle school regarding the school's response to the COVID-19 pandemic. During the interview, participants will be asked questions about their perceptions of the strategies implemented by the school to prevent learning loss, especially in the areas of instruction, communication, and access to technology, as well as their opinions regarding which strategies, if any, would have been more effective. It will take about 45 minutes to complete this interview. The interview will be recorded so your responses will be transcribed accurately.

Your participation is voluntary. You may choose not to participate or withdraw at any time.

There are no risks from participating in this project. There are no direct benefits for you participating in this study.

We will not collect any data which may identify you.

We will do everything we can to protect your privacy. We do not intend to include information that could identify you in any publication or presentation. Any information we collect will be stored by the researcher in a secure location. The only people who will be able to see your data include members of the research team, qualified staff of Lindenwood University, and representatives of state or federal agencies.

Who can I contact with questions?

If you have concerns or complaints about this project, please use the following contact information:

Christian Meier – csm139@lindenwood.edu

Dr. Sherry DeVore – sdevore@lindenwood.edu

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Appendix L

LINDENWOOD

Research Information Sheet

Teacher/Principal Interview

You are being asked to participate in a research study. We are conducting this study to examine the opinions and perceptions of teachers and a principal of a rural Missouri middle school regarding the school's response to the COVID-19 pandemic. During an interview, participants will be asked questions about their perceptions of the strategies implemented by the school to prevent learning loss, especially in the areas of instruction, communication, and access to technology, as well as their opinions regarding which strategies, if any, would have been more effective. It will take about 45 minutes to complete this interview. The interview will be recorded so your responses will be transcribed accurately.

Your participation is voluntary. You may choose not to participate or withdraw at any time.

There are no risks from participating in this project. There are no direct benefits for you participating in this study.

We will not collect any data which may identify you.

We will do everything we can to protect your privacy. We do not intend to include information that could identify you in any publication or presentation. Any information we collect will be stored by the researcher in a secure location. The only people who will be able to see your data include members of the research team, qualified staff of Lindenwood University, and representatives of state or federal agencies.

Who can I contact with questions?

If you have concerns or complaints about this project, please use the following contact information:

Christian Meier – csm139@lindenwood.edu

Dr. Sherry DeVore – sdevore@lindenwood.edu

If you have questions about your rights as a participant or concerns about the project and wish to talk to someone outside the research team, you can contact Michael Leary (Director - Institutional Review Board) at 636-949-4730 or mleary@lindenwood.edu.

Vita

Christian Scott Meier graduated from Wes-Del High School in Gaston, Indiana, in 1996. After high school, Christian attended Southwest Missouri State University in Springfield, Missouri, on a full academic scholarship, where he obtained his Bachelor of Science degree in Middle School Education. In 2002, he earned his first position in education as a middle school science and social studies teacher at Sparta R-III School District.

Christian completed his Master's Degree in Educational Administration in 2008 from William Woods University. He served as a high school assistant principal and principal at Sparta R-III, and later, at Forsyth R-III School District. In 2018, he completed his Educational Specialist Degree in School Administration and was hired later that year by the Warsaw R-IX School District as Assistant Superintendent. Christian currently serves as the Director of Clinton Technical School in Clinton, Missouri.