A CAUSAL-COMPARATIVE STUDY OF THE DIFFERENCE IN STUDENT ACADEMIC OUTCOMES AMONG ELEMENTARY AND SECONDARY ONLINE STUDENTS BASED ON PARENTAL PERCEPTIONS OF VIRTUAL INSTRUCTION

by

Elizabeth Gordon Mondoux

Liberty University

A Dissertation Presented in Partial Fulfillment

Of the Requirements for the Degree

Doctor of Philosophy

Liberty University

2024

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ABSTRACT

The purpose of this quantitative, nonexperimental causal-comparative study was to determine if there is a difference in student academic outcomes among elementary and secondary students who participate in online learning whose parents have favorable perception ratings of virtual learning and those whose parents do not. Understanding the influence of environmental factors on a student's academic achievement, including persons close to the student, provides a conceptual framework for the direct impact of parental satisfaction with educational experiences on student performance in the online learning environment. The Panorama Family-School Relationships Survey was used to measure overall parental perceptions of the online learning environment and pedagogical practices. A convenience sample of 139 parents from a target population of students who were enrolled in virtual instruction through their local school district in central Virginia for the most recently completed school year (2022-2023) were surveyed for this online causal-comparative study. A two-way analysis of variance (ANOVA) was started to analyze the data collected. The assumption of normality and assumption of homogeneity of variance was not met. The data was strongly negatively skewed and was transformed. Due to assumption violations with the original and transformed (logarithmic and inverse) data, the Two-Way ANOVA was not completed. Visual analysis of the data collected for this study supports the theory that parental satisfaction with the learning environment continues to be a factor influencing student academic outcomes in post-pandemic education, where virtual instruction has become an established option to traditional face-to-face learning.

Keywords: online learning, virtual instruction, parental perception, academic achievement, academic outcomes, parental satisfaction, student self-efficacy

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Dedication

I dedicate this dissertation to my family, whose love, support, and encouragement allowed me to reach this goal.

For Christopher, my love and my rock.

For Ian and Aislinn, my heart and my reason.

For Bella, Bodhi, and Sadie Rose, my unrelenting sources of affection and laughter.

For Mom and Dad, my guardian angels.

Acknowledgments

I wish to express my sincere gratitude to the following for their part in this incredible journey:

To God, for blessing me with the strength, wisdom, and fortitude to complete the journey.

To Dr. Heather Keahey, my Committee Chair, whose guidance, support, knowledge, patience, understanding, grace, and kindness has been invaluable to me throughout this process. I was blessed to have taken this journey under your supervision.

To Dr. Treg Hopkins, whose high expectations in EDUC 980 prepared me for the rigors of the dissertation journey, and who graciously agreed to continue on the journey with me as my Methodologist. I appreciate your honesty, your clarity, and your ongoing support.

To Dr. Dana Gresham, Ms. Veronica Pitts, and Ms. Stacy Stanford for your support and encouragement.

To my students for giving me the reason. They are why I did this.

To my husband, Christopher, for picking up all of my personal slack over what have been four of the most difficult and challenging years of our lives together for many reasons. You never let me give up. I could not have done this without you.

To my children, Ian and Aislinn, for believing in me and supporting me. The hugs, the chat breaks in my office, and the coffees meant the world and kept me sane.

To my golden fur babies Bodhi and Sadie Rose for providing unlimited support in kisses and silliness on many a long day and long night of writing.

And to my shepherd fur baby, Bella, who has taken every step of this journey with me. For laying at my feet as I sat at my computer completing all of the coursework and throughout the dissertation process. I think she has rightfully earned her own degree.

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Coronavirus Disease (COVID-19)

Self-determination Theory (SDT)

CHAPTER ONE: INTRODUCTION

Overview

The purpose of this quantitative, causal-comparative study is to determine if there is a difference in online student academic outcomes based on academic level and parental perceptions of virtual instruction. Chapter One provides a background for the topics of parental influence on student academic achievement based on academic level. Included in the background is an overview of the theoretical framework for this study. The problem statement examines the scope of the recent literature on this topic. The purpose of this study is followed by the significance of the current study and the research questions. The chapter concludes with a list of key terms and their definitions.

Background

Before the COVID-19 pandemic, online learning was an alternative platform that provided flexible educational opportunities both within and outside the traditional brick-and-mortar classroom (Flanagan & Morgan, 2021; Kingsbury, 2021). Educational technologies have been used to support student understanding, provide enrichment and remediation, and enhance lesson activities through blended learning (Prifti, 2022; Trust, 2018). However, the school closures of 2020 shifted instructional methods and delivery to entirely virtual for many. Parental perspectives on virtual learning changed during the pandemic as online platforms were widely used during the 2020-2021 school year to provide safe learning opportunities for all students (Lau et al., 2021). The literature examined for this study identified shifts in parental opinion and perspectives from the pre-pandemic through the 2021-2022 school year. Parental opinions of virtual learning at the onset of the pandemic in 2020 were positive and supportive, as parents appreciated the opportunity and need for their children to continue learning as communities

worldwide were locked down (Fontenelle-Tereshchuk, 2021; Henderson, 2021). As the pandemic continued and many children continued to receive instruction through virtual platforms, studies have indicated a decline in parental satisfaction with the quality of instruction and accessibility to traditional pedagogy and learning opportunities (Fontenelle-Tereshchuk, 2021; Jumareng et al., 2022; Kingsbury, 2021; Lau et al., 2021). Additionally, the available research suggested a correlation between the academic outcomes of students participating in online learning and the self-efficacy and perception of learning context derived from parental influence (Chowkase et al., 2022; Du et al., 2018; Gebauer et al., 2020; Jumareng et al., 2022; Lam & Chan, 2016).

Historical Overview

Technology has played an increasingly prominent role in education since the integration of computers into classrooms in the 1980s (Hao et al., 2020; Wong, 2019). The development and accessibility of educational technologies over the last twenty years have influenced the implementation of computer-based learning platforms and applications to enhance and support active learning and diversified instruction (Florenthal, 2019; Hao et al., 2020; Nicol et al., 2018; Sprenger & Schwaninger, 2021). The increased availability and accessibility of e-learning tools such as learning management systems, virtual reality platforms, and web-based applications over the last two decades have prompted a shift in pedagogical approaches to reflect the high consumption of technology that students engage in outside the classroom (Florenthal, 2019; Hao et al., 2020; Nicol et al., 2018).

Educators have taken a responsive and pragmatic approach to the implementation of technology in their classrooms, from pre-school through post-secondary, by enriching their traditional instruction with activities that incorporate the available technologies in ways that

engage their students in active, collaborative, and relevant student-centered blended learning opportunities across all content areas (Danielsson et al., 2018; Florenthal, 2019; Hao et al., 2020; Kingsbury, 2021; Mayer, 2019; Nicol et al., 2018). The COVID-19 lockdown in 2020 prompted an abrupt shift to fully-virtual learning, which presented educators, students, and parents with many technological and pedagogical challenges. As many students returned to traditional brick-and-mortar classrooms in 2021 and began participating in learning assessments to determine their present instructional level and to identify disparities in understanding, the realized outcomes of virtual learning varied (Fontenelle-Tereshchuk, 2021; Henderson, 2021; Jumareng et al., 2022). While parental support has always been a variable in student success, the increase in learning from home brought into question the influence of parental perspectives and satisfaction with student achievement in virtual learning (Ball et al., 2016; Bandura, 1977; Chowkase et al., 2022; Du et al., 2018; Fontenelle-Tereshchuk, 2021; Gebauer et al., 2020; Lam & Chan, 2016; Loh, 2019).

The COVID-19 global pandemic forced a transition to virtual learning for millions of students worldwide (Fontenelle-Tereshchuk, 2021; Henderson, 2021; Jumareng et al., 2022; Lau et al., 2021). This crisis-based transition addressed the educational needs of learners while allowing families to shelter at home to avoid contracting and spreading the coronavirus. The impact of the hurried pivot to online learning on student progress compared to previous outcomes continues to be examined as many districts have adopted virtual learning as an option for those who prefer the online environment over face-to-face. While experience and research continue to support the increasing presence of online instruction for K-12 students, parental perceptions regarding the equity and substantiveness of virtual learning have been suggested as

limiting student self-efficacy and achievement (Chowkase et al., 2022; Du et al., 2018; Gebauer et al., 2020; Jumareng et al., 2022; Lam & Chan, 2016).

Society-at-Large

The impacts of the shift to online learning for many students during the 2020-2021 academic year are still being evaluated, but standardized assessments administered at the school and district levels suggest a deficiency in academic growth and lower performance by students during the pandemic (Henderson, 2021; Lau et al., 2021). Many students have chosen to remain online despite a widespread return to traditional face-to-face learning for the 2021-2022 academic year (Fontenelle-Tereshchuk, 2021; Henderson, 2021; Jumareng et al., 2022). The focus has shifted from virtual emergency learning to creating equitable, relevant, targeted, and rigorous instructional opportunities for all online students equal to that available face-to-face (Eynon & Malmberg, 2021; Kingsbury, 2021). Studies have identified disparities between face-to-face and virtual learning during the pandemic, including issues with technology impacting instruction, lack of access to manipulatives and other supportive instructional materials, and limited resources available to students with disabilities learning online (Cole et al., 2021; Fontenelle-Tereshchuk, 2021; Jumareng et al., 2022; Kingsbury, 2021).

The research is limited regarding the factors influencing academic achievement in virtual learning now that online platforms have become a post-COVID standard alternative offered by many districts. This study will help determine the influence of a social contextual factor, parental perspective, and satisfaction with virtual instruction on a student's ability to achieve in an online educational setting. Further research on this topic will help educators design effective curricula, plan for equitable instruction, and identify appropriate supports for parents and students engaged in virtual learning to facilitate higher academic outcomes for all students.

Theoretical Background

Albert Bandura's social cognitive theory emphasized the interaction of people, personal behaviors, and their environment, known as reciprocal determinism (Bandura, 1986). Evolving from his (Bandura, 1986) social learning theory developed in the 1960s, Bandura's social cognitive theory also considered the significance of experience and environment but emphasized the impact of specific social influences on a person's behavior and suggests that specific changes within an individual's environment will result in correlating changes in behavior (Bandura, 1986). Additionally, Bandura's social cognitive theory considered the influence of expectations and self-efficacy on an individual's behavior and engagement in learning (Bandura, 1977; Mayer, 2019; Ouyang et al., 2021). This correlation connects his theory to this study which focused on the impact of environmental factors, specifically the influence of parental opinions on the learning environment, and how those opinions directly impact student academic outcomes (Bandura, 1977; Mayer, 2019; Wang & Lin, 2021). Understanding the influence of environmental factors, including persons close to the student, provides a conceptual framework for the direct impact of parental perceptions on student performance in the online learning environment.

Problem Statement

Research has identified a correlation between the negative parental opinion of learning context and student academic outcomes and that the strength of the relationship may vary depending on a range of factors, including curriculum, teaching style, and school environment (Fontenelle-Tereshchuk, 2021; Gebauer et al., 2020; Joët et al., 2011; Jumareng et al., 2022; Lam & Chan, 2016). According to the research, parents with unfavorable views on the learning context, including the caliber of instruction, the curriculum, or the school environment, can

negatively influence their children's academic performance. This may result from several factors, including how parents' views affect their student's motivation, their involvement in their children's educational process, and having high expectations for their child's success (Lui et al., 2020; Maltais et al., 2021; Milovanska-Farrington, 2022; Nyanamba et al., 2022; Otani, 2020; Otero et al., 2020; Pinquart & Ebeling, 2020; See et al., 2020; Shi & Tan, 2021; Wang et al., 2021; Yang et al., 2022).

Further studies have also noted a correlation between student self-efficacy and academic achievement in face-to-face traditional and blended learning environments and pandemic virtual instruction (Chowkase et al., 2022; Cole et al., 2021; Du et al., 2018; Kingsbury, 2021). Studies have found that students with higher levels of self-efficacy are more likely to participate in academic activities, persevere through challenges, and achieve higher academic outcomes (Adams et al., 2020; Du et al., 2018; Dunbar et al., 2018; Filippello et al., 2020; Gebauer et al., 2020; González-Benito et al., 2021; Heo et al., 2021; Larsen & Jang, 2021; Lei et al., 2022; Lim et al., 2021; Lin, 2021; Mornar et al., 2022; Ortlieb & Schatz, 2020; Prifti, 2022; Punjani & Mahadevan, 2021; Supervía et al., 2022; Tarkar et al., 2022; Yuliyanto et al., 2021; Zhen et al., 2020; Zumbrunn et al., 2020; Zysberg & Schwabsky, 2021). Furthermore, the research has suggested that self-efficacy positively correlates with academic achievement across all content areas in traditional face-to-face and blended learning contexts. (Gebauer et al., 2020; Larsen & Jang, 2021; Mornar et al., 2022; Ortlieb & Schatz, 2020; Tarkar et al., 2022; Yuliyanto et al., 2021; Zumbrunn et al., 2020). Studies that focused on students participating in virtual instruction during the 2020-2021 school year identified a correlation between self-efficacy and academic success in the online environment similar to in-person instruction (Heo et al., 2021; Lim et al., 2021; Prifti, 2022; Punjani & Mahadevan, 2021; Zysberg & Schwabsky, 2021). This suggests

that higher levels of self-efficacy are associated with increased academic performance regardless of learning context. The research does not, however, fully address the factors influencing the self-efficacy of students participating in virtual instruction in their home environment.

Some of the literature shows an increase in parental support for online learning early in the pandemic (Henderson, 2021; Jumareng et al., 2022; Lau et al., 2021). Favorable parental opinions waned, however, as virtual learning continued into a second full academic year for the 2021-2022 school year, and student assessments from the 2020-2021 school year identified a decrease in student performance (Al-Abdullatif & Aladsani, 2022; Alsarayreh et al., 2022; Hinderliter et al., 2022; Jumareng et al., 2022; Lau et al., 2021). The research identified parental involvement as a crucial component of students' success during the pandemic 2020-2021 school year. Due to the COVID-19 pandemic's transition to remote instruction, many parents took a more active role in their child's education, particularly in supporting their child's online learning experience. Studies have identified parental support as a key predictor of their children's success in online learning during the epidemic (Al-Abdullatif & Aladsani, 2022; Alsarayreh et al., 2022; Hinderliter et al., 2022; Jumareng et al., 2022; Lau et al., 2021). According to the research, parents who supported their child's online learning by setting up a dedicated workstation, establishing regular routines, and keeping track of their progress were more likely to have kids who did well in their online courses. However, not all families could provide the same level of support for their children's online learning during the pandemic due to varying factors such as work schedules, ability to provide instructional support with subject matter, and challenges with technology. Studies suggested that these factors contributed to a decrease in the favorability of online learning as parents struggled to support their child’s learning while balancing work and other responsibilities (Al-Abdullatif & Aladsani, 2022; Alsarayreh et al., 2022; Hinderliter et al.,

2022; Jumareng et al., 2022; Lau et al., 2021). The problem is that more research is needed to fully address whether there is a difference in academic outcomes among elementary and secondary students who participate in online learning and whose parents have a favorable perception of virtual learning and those whose parents do not.

Purpose Statement

The purpose of this quantitative, nonexperimental causal-comparative study is to determine whether there is a difference in student academic outcomes among elementary and secondary students who participate in online learning based on the parental level of satisfaction with virtual learning. There are two independent variables for this study. The first independent variable is academic level. The groups that compose this independent variable are elementary school and secondary school students. Elementary school students are those in grades 4 and 5. Secondary school students are students in grades 6 through 12. The second independent variable is the favorability category, "based on the expressed overall parental satisfaction" (Bahena et al., 2015, p.6), with online learning derived from measures of parental perception of the quality of instruction and school climate from the survey. The groups that make up this independent variable are Level 1, Level 2, and Level 3 based on the parental average satisfaction score. The dependent variable is the mean of the parent-reported grades for core content courses. The population for this study is a school district in Central Virginia. The sample is the parents of students enrolled in the same fully accredited county virtual synchronous learning platform for the most recent school year (2022-2023).

Significance of the Study

Previous studies have identified a correlation between student self-efficacy and performance in both blended learning and fully virtual contexts (Chowkase et al., 2022; Cole et

al., 2021; Prifti, 2022). Additional studies have highlighted the significant impact of social-emotional context and the opinions of those in authority on student self-efficacy (Du et al., 2018; Gebauer et al., 2020; Joët et al., 2011; Lam & Chan, 2016). A limited amount of research exists that examines the impact of parental involvement and student self-efficacy in online learning during the initial COVID lockdown and pivot to virtual instruction (Fontenelle-Tereshchuk, 2021; Henderson, 2021; Jumareng et al., 2022). However, little or no literature examines the influence of parental perceptions of virtual instruction on student self-efficacy and academic achievement from the 2021-2022 school year forward when virtual learning became an established alternative option in many districts. As districts continue to develop online learning platforms to serve their student populations, more data is needed to support the decisions to provide equitable, relevant instruction for all students. This study adds to the existing research and identifies perceptions and outcomes in the post-pandemic context where educators, students, and parents experienced virtual learning through choice and, in most cases, the experience gained from the previous year online. This research is significant because it identifies specific factors contributing to student academic achievement that must be considered as administrators work to determine the continuing viability of established virtual learning platforms in their district.

Additionally, this study provides assessment and stakeholder data that may be used to design appropriate curricula and instructional opportunities for online students equitable to those experienced by students in face-to-face settings. Technology continues to influence our increasingly globalized society, and education is the platform through which our growing citizens and leaders of tomorrow gain the knowledge and skills to guide our communities into the future (Eynon & Malmberg, 2021; Punjani & Mahadevan, 2021; Trust, 2018). Accessibility

to and participation in virtual learning continues to increase as the world becomes more connected through technology. This study supports the ongoing development of a learning platform that serves the immediate and future needs of our young learners and communities. The outcomes of this study will assist educators and parents in providing equitable and viable learning experiences for all students in both face-to-face and virtual post-pandemic educational settings. Additionally, this research will help identify future studies supporting online learning as it continues to evolve.

Research Question

RQ1: Is there a difference in *online student combined core content grade averages* among elementary and secondary online students based on their parent's perceptions of virtual instruction?

Definitions

1. *Academic Level*- Academic level refers to the level of schooling a student has attained, such as elementary or secondary (Wigfield & Eccles, 2000).
2. *Academic Outcomes*- The achievement results of students engaged in learning based on standardized goals (Bubić et al., 2020; González-Benito et al., 2021).
3. *Learning Goals*- Academic goals that focus on student achievement on standards and understandings being taught (Bandura, 1986).
4. *Motivation*- The internal drive or desire to accomplish a goal (Wigfield, 1994).
5. *Parental Perception*- The perspective of the parent regarding the quality of instruction and school climate (Bahena et al., 2015; Schueler et al., 2014).
6. *Performance Goals*- Short-term goals that are aligned with student performance on a specific task (Hertel & Karlen, 2021; Li et al., 2021).

7. *Student Autonomy*- The amount of flexibility students have in their learning environment (Bureau et al., 2021; Domen et al., 2020).
8. *Student Self-Efficacy*- Self-efficacy refers to the student's belief in their ability to achieve success based on their knowledge and skill set (Bandura, 1977; Gebauer et al., 2020).

CHAPTER TWO: LITERATURE REVIEW

Overview

A systematic review of the literature is conducted to explore the relationship between parental perceptions of different learning platforms and online student academic outcomes among elementary and secondary learners. This chapter offers a review of the research on this topic. Bandura's (1986) social cognitive theory and the impact of student self-efficacy on academic functioning are discussed in the first section. This is followed by a discussion of Wigfield's (1994) expectancy-value theory of motivation and a review of the recent literature on the perceived value of a task on a student's motivation. The literature surrounding the influence of parental behaviors on student self-efficacy and the impact on student performance will be discussed. A gap in the literature identified a need for more research to determine if there is a difference in elementary and secondary student academic outcomes among students who participate in online learning whose parents have favorable perceptions of virtual learning and those whose parents do not.

Theoretical Framework

This research has a theoretical framework based on Bandura's social cognitive theory (1977, 1986) and Wigfield's (1994) expectancy-value theory of achievement motivation. These theories provide insight into the influence of parental opinion on student self-efficacy and achievement outcomes. Several studies have linked Bandura's social cognitive theory (1986) with student motivation, self-efficacy, and performance in the traditional classroom. However, the available literature examining this theory or Wigfield's (1994) expectancy-value theory in a virtual learning environment is limited. The theories of Bandura (1986) and Wigfield (1994)

provide a framework to explore parental perception's impact on student self-efficacy and achievement outcomes in a virtual learning environment.

Bandura's Social Cognitive Theory

Albert Bandura's social cognitive theory emphasizes the interaction of people, personal behaviors, and their environment, known as reciprocal determinism (Bandura, 1986). Evolving from his (Bandura, 1986) social learning theory developed in the 1960s, Bandura's social cognitive theory also considers the significance of experience and environment but emphasizes the impact of specific social influences on a person's behavior. Social cognitive theory suggests that specific changes within an individual's environment will result in correlating changes in behavior (Bandura, 1986). This theory (Bandura, 1986) suggests that individuals seek a sense of agency, or autonomy, which will allow them to exert significant control over events in their lives (Schunk & DiBenedetto, 2020). A sense of autonomy, in turn, impacts their motivation and influences their performance and ability to succeed in daily activities, including learning, by providing a sense of independence and confidence (Bandura, 1986; Ouyang et al., 2021; Schunk & DiBenedetto, 2020; Zhen et al., 2020; Zysberg & Schwabsky, 2021).

Bandura's social cognitive theory also considered the influence of expectations and self-efficacy on an individual's behavior and engagement in learning (Bandura, 1977; Mayer, 2019; Ouyang et al., 2021; Schunk & DiBenedetto, 2020). This correlation between self-efficacy and learning engagement and outcomes connects social cognitive theory to this study which will focus on the impact of environmental factors, specifically the influence of parental opinions on learning context, on student self-efficacy and academic outcomes (Bandura, 1977; Mayer, 2019; Wang & Lin, 2021; Zhen et al., 2020; Zysberg & Schwabsky, 2021). Understanding the influence of environmental factors, including the perspectives of persons close to the student,

will provide the conceptual framework within which the direct impact of parental satisfaction with the educational experience on student performance in the online learning environment will be examined.

Expectancy-Value Theory of Achievement Motivation

Wigfield's (1994) expectancy-value theory expanded upon the foundations of a theory proposed by Eccles et al. (1983) that suggested student achievement on a specific task can be predicted by the student's expectancy of success and the value they place on the given task (Eccles et al., 1983). The expectancy-value theory of achievement motivation (Wigfield, 1994) suggested that changes in ability beliefs and perceptions of tasks could influence academic outcomes. This theory complements Bandura's (1986) theory of outcome expectancy, which suggests that an individual's anticipated outcomes serve as motivations and prompt specific actions and particular behaviors that will likely result in an expected outcome (Schunk & DiBenedetto, 2020; Zysberg & Schwabsky, 2021). Wigfield (1994) further suggested that students who choose to take a more active role in learning would be more successful than those who resist engagement (Wigfield & Eccles, 2000). Furthermore, Wigfield (1994) suggested that a student's perception of the attitudes and expectations of their parents influenced the student's specific task goals and overall belief structure and self-efficacy. The expectancy-value theory of achievement motivation (Wigfield, 1994) provides insight into the influence of parental satisfaction on a student's perception of value and ability concerning both individual tasks and overall achievement in a particular learning environment.

Expectancy-value theory and the impact of student motivation on performance in certain subjects and content areas such as STEM (Ball et al., 2016; Yesilyurt et al., 2021) and language learning (Loh, 2019) has been examined in the literature, and a correlation between student

perceptions of value and ability and achievement outcomes has been identified. Additional studies have used expectancy-value motivation to explore and map the brain's response to reward-driven motivators, which supported a neurobiological correlation to Wigfield's theory (Kohli et al., 2018). These understandings provide substantial insight into the influence of parental opinion on student achievement by highlighting the impact of parental perspective on student perception and motivation. The research identified several correlations between these theories and student self-efficacy and academic outcomes in traditional classroom environments. However, limited studies examine these theories in a virtual learning context. Together, Bandura's (1986) social cognitive theory and Wigfield's (1994) expectancy-value motivation theory will provide the framework for this study to determine the implications of parental satisfaction with virtual instruction on the self-efficacy, motivation, and academic outcomes of students engaged in an online learning environment.

Related Literature

Before the COVID-19 pandemic, online learning was an alternative platform that provided flexible educational opportunities both within and outside the traditional brick-and-mortar classroom (Danielsson et al., 2018; Florenthal, 2019; Hao et al., 2020). Over the last three decades, the number of educational technologies being developed to support student understanding, provide enrichment and remediation, and enhance lesson activities through blended learning opportunities has been increasing (Kommers & de Haan, 2021; Lim et al., 2021; Mayer, 2019; Nicol et al., 2018; Prifti, 2022; Sprenger & Schwaninger, 2021; Wong et al., 2020). The ongoing and rapid globalization of society through the increasing influence of technology has prompted a growing demand for technology-enriched experiences at all levels of education to support the evolving basic skillset needed by 21st-century learners to be successful

in their future career or educational path (Kommers & de Haan, 2021; Lim et al., 2021; Mayer, 2019; Nicol et al., 2018; Prifti, 2022; Sprenger & Schwaninger, 2021; Wong et al., 2020).

Since 2000, many schools have progressively implemented the use of education technologies for teacher-lead direct instruction, guided practice, and independent practice and enrichment activities to enhance and enrich instruction (Lim et al., 2021; Mayer, 2019; Nicol et al., 2018; Prifti, 2022; Sprenger & Schwaninger, 2021; Wong et al., 2020). Additionally, schools have sought and developed rigorous and relevant opportunities for all learners to engage with technology and develop the skills necessary to become active participants in today's increasingly globalized and technology-driven society (Kommers & de Haan, 2021; Lim et al., 2021; Mayer, 2019; Nicol et al., 2018; Prifti, 2022; Sprenger & Schwaninger, 2021; Wong et al., 2020). However, the school closures of 2020 abruptly shifted these transforming instructional methods and delivery to entirely virtual and placed many students in an online setting with varying levels of experience using those technologies (Almusharraf & Khahro, 2020; Chowkase et al., 2022; Eynon & Malmberg, 2021). This abrupt shift and the resulting academic outcomes prompted negative perceptions of virtual learning based solely on the experiences of crisis learning, which have impacted parental perceptions of the online learning environment as instruction has returned to traditional methods and contexts, including engaging with continuously evolving virtual platforms and educational technologies (Cole et al., 2021; Drvodelić & Domović, 2021; Fontenelle-Tereshchuk, 2021; Henderson, 2021; Liao et al., 2021; Mayer, 2019; Trust, 2018).

Despite the overwhelming enthusiasm, support, and positive feedback received from the use of educational technologies in the classroom in previous years, parental perspectives on virtual learning changed over the course of the pandemic as online platforms were widely used during the 2020-2021 school year to provide safer, yet often challenging and inequitable,

learning experiences for all students (Alsarayreh et al., 2022; Chowkase et al., 2022; Flanagan & Morgan, 2021; Henderson, 2021; Hinderliter et al., 2022; Jumareng et al., 2022; Lau et al., 2021; Lui et al., 2020; Midcalf & Boatwright, 2020; Nyanamba et al., 2022; Yang et al., 2022). The research reviewed identified a shift in parental perception of the effectiveness of virtual instruction during the 2020-2021 school year due to a lack of student engagement, inaccessibility to teachers and the shift in instructional responsibility to the parent, and the challenges with technology that were unsupported by the schools (Cole et al., 2021; Drvodelić & Domović, 2021; Fontenelle-Tereshchuk, 2021; Henderson, 2021; Liao et al., 2021).

While the use of educational technologies has been continuously increasing over the last two decades, the availability of resources and training on their use for both students and instructional staff has varied from school to school since implementation began (Danielsson et al., 2018; Eynon & Malmberg, 2021; Flanagan & Morgan, 2021; Hao et al., 2020; Kingsbury, 2021; Kommers & de Haan, 2021; Lin, 2022; Nicol et al., 2018; Sprenger & Schwaninger, 2021; Zhu, 2021). Several factors, including funding and available resources and teacher training on and support of the available educational technologies, created vastly differing experiences across districts and, in some cases, within individual schools (Eynon & Malmberg, 2021; Flanagan & Morgan, 2021; Hao et al., 2020; Kingsbury, 2021; Kommers & de Haan, 2021; Lin, 2022; Nicol et al., 2018; Zhu, 2021). As a result, while some communities were prepared for a shift to online learning, many teachers, students, and parents were unprepared for the challenges of fully virtual instruction during this period of crisis learning (Almusharraf & Khahro, 2020; Alsammak et al., 2022; Bai & Gu, 2022; Darling-Aduana et al., 2022; Drvodelić & Domović, 2021; Fontenelle-Tereshchuk, 2021; Heo et al., 2021; Hinderliter et al., 2022; Jumareng et al., 2022; Lau et al., 2021; Nyanamba et al., 2022; Yang et al., 2022). This lack of fluency with the technology being

used resulted in an increased disparity between student engagement and interaction with teachers and curricular materials experienced in the face-to-face context and virtual learning (Alsammak et al., 2022; Alsarayreh et al., 2022; Bai & Gu, 2022; Darling-Aduana et al., 2022; Drvodelić & Domović, 2021; Fontenelle-Tereshchuk, 2021; Heo et al., 2021; Jumareng et al., 2022; Kingsbury, 2021; Lau et al., 2021; Yang et al., 2022). The research reviewed suggested that experiences of the 2020-2021 school year significantly and negatively impacted the opinions and perceptions of the use of educational technologies and virtual instruction (Almusharraf & Khahro, 2020; Darling-Aduana et al., 2022; Drvodelić & Domović, 2021; Fontenelle-Tereshchuk, 2021; Hinderliter et al., 2022; Jumareng et al., 2022; Kingsbury, 2021; Lau et al., 2021; Nyanamba et al., 2022; Yang et al., 2022).

The literature examined for this study identified shifts in parental opinion and satisfaction with virtual instruction from pre-pandemic through the 2020-2021 school year and suggested a correlation between the academic outcomes of students participating in online learning and the self-efficacy and perception of learning context derived from the influence of negative parental opinions and dissatisfaction shared with students during this period (Chowkase et al., 2022; Du et al., 2018; Gebauer et al., 2020; Jumareng et al., 2022; Lam & Chan, 2016). The research available on parental satisfaction with virtual learning and student academic outcomes realized during online instruction focuses primarily on the COVID-19 crisis learning period and does not consider the influence of parental satisfaction on student academic achievement in the post-pandemic regular online learning environment (Almusharraf & Khahro, 2020; Darling-Aduana et al., 2022; Drvodelić & Domović, 2021; Fontenelle-Tereshchuk, 2021; Hinderliter et al., 2022; Jumareng et al., 2022; Kingsbury, 2021; Lau et al., 2021; Nyanamba et al., 2022). A gap exists in the literature, which specifically considers the influence of parental perceptions of virtual

instruction as an option to the traditional face-to-face educational environment on K-12 student academic outcomes.

Student Self-Efficacy

According to Bandura's (1986) Social Cognitive Theory and Wigfield's (1994) expectancy-value theory of motivation, a student's academic performance is greatly influenced by their sense of self-efficacy. Multiple studies have examined the impact of student self-efficacy on academic success (Adams et al., 2020; Azizi et al., 2022; Bai & Gu, 2022; de Bree & Zee, 2020; Du et al., 2018; Dunbar et al., 2018; Gebauer et al., 2020; González-Benito et al., 2021; Heo et al., 2021; Larsen & Jang, 2021; Lei et al., 2022; Lim et al., 2021; Mornar et al., 2022; Ortlieb & Schatz, 2020; Supervía et al., 2022; Tarkar et al., 2022; Zhen et al., 2020; Zysberg & Schwabsky, 2021). The research examined suggested that pupils who have high levels of self-efficacy are more likely to establish rigorous objectives and stick with their attempts to achieve those goals (Bai & Gu, 2022; Bubić et al., 2020; Du et al., 2018; Dunbar et al., 2018; Gebauer et al., 2020; González-Benito et al., 2021; Heo et al., 2021; Larsen & Jang, 2021; Lei et al., 2022; Lim et al., 2021; Mornar et al., 2022; Ortlieb & Schatz, 2020; Tarkar et al., 2022; Zhen et al., 2020; Zysberg & Schwabsky, 2021). Additionally, several studies have identified a correlation between self-efficacy and increased motivation which resulted in students demonstrating the increased commitment of time and effort necessary to succeed academically (González-Benito et al., 2021; Lim et al., 2021; Punjani & Mahadevan, 2021; Supervía et al., 2022; Zysberg & Schwabsky, 2021).

A recurring theme in the literature examined was the impact of student self-efficacy on academic outcomes (Chowkase et al., 2022; Du et al., 2018; Dunbar et al., 2018; Gebauer et al., 2020; González-Benito et al., 2021; Jumareng et al., 2022; Lam & Chan, 2016). A student's

confidence in their ability and understanding of the value of a specific task or learning experience has been identified as a potential influence on achievement and learning outcomes (Cole et al., 2021; Du et al., 2018; Dunbar et al., 2018; Gebauer et al., 2020; Lam & Chan, 2016). Studies have shown substantial improvement in specific tasks, such as writing, STEM activities, and Math, with increased self-efficacy in elementary students (Mornar et al., 2022; Tarkar et al., 2022; Yuliyanto et al., 2021; Zhen et al., 2020; Zumbrunn et al., 2020) and high school students (Lei et al., 2022; Lin, 2021; Murayama et al., 2021). Additionally, several studies identified self-efficacy as a key determinant of increased student academic achievement through measures of resilience, goal setting, cooperation with and leadership of peers, and level of motivation to succeed (Adams et al., 2020; Bandura, 1977; de Bree & Zee, 2020; Du et al., 2018; Dunbar et al., 2018; Gebauer et al., 2020; González-Benito et al., 2021; Heo et al., 2021; Joët et al., 2011; Larsen & Jang, 2021; Lei et al., 2022; Lim et al., 2021; Mornar et al., 2022; Supervía et al., 2022; Tarkar et al., 2022; Wang et al., 2022; Zhen et al., 2020; Zumbrunn et al., 2020; Zysberg & Schwabsky, 2021). Further studies also identified parental influence as another key factor in the development of social and academic self-efficacy in children (Almusharraf & Khahro, 2020; Bubić et al., 2020; Dunbar et al., 2018; Filippello et al., 2020; Gebauer et al., 2020; Grijalva-Quiñonez et al., 2020; Lam & Chan, 2016; Lei et al., 2022; Loh, 2019; Lynam et al., 2022; Maltais et al., 2021; Milovanska-Farrington, 2022; Otani, 2020; Otero et al., 2020; Pinquart & Ebeling, 2020; See et al., 2020; Shi & Tan, 2021; Sun et al., 2020).

Through qualitative and quantitative analysis, researchers have identified determinants of student self-efficacy which have proven to have a substantial impact on academic performance (Chowkase et al., 2022; Dunbar et al., 2018; Fontenelle-Tereshchuk, 2021; Joët et al., 2011; Jumareng et al., 2022; Lam & Chan, 2016; Lau et al., 2021). The studies examined reported

parent and teacher perceptions of online classroom quality to be influential on student self-efficacy and ability to achieve (Chowkase et al., 2022; Cole et al., 2021; Drvodelić & Domović, 2021; Fontenelle-Tereshchuk, 2021; Hinderliter et al., 2022; Jumareng et al., 2022; Kingsbury, 2021; Liao et al., 2021; Midcalf & Boatwright, 2020) and identified these two factors as criteria by which the value of instruction and correlating activities are determined (Chowkase et al., 2022; Fontenelle-Tereshchuk, 2021). Students whose parents did not validate the suitability and importance of activities and instruction performed lower than students with parents who did (Fontenelle-Tereshchuk, 2021; Jumareng et al., 2022). The importance of positive feedback from both parents and teachers on student performance continues to be a significant factor in student self-efficacy in all educational environments (Berry, 2020; Hertel & Karlen, 2021; Lam & Chan, 2016; Schunk & DiBenedetto, 2020; Teig & Nilsen, 2022), but a lack of timely and supportive feedback was shown to impact student performance in virtual learning during the pandemic negatively (Chowkase et al., 2022; Fontenelle-Tereshchuk, 2021; Lau et al., 2021).

Bandura's (1986) Social Cognitive Theory and Wigfield's (1994) Expectancy Value Theory of Motivation provide strong evidence for the impact of student self-efficacy on academic accomplishment. According to these two theories, children with high levels of self-efficacy are more likely to create and be motivated to attain rigorous goals. Studies have evidenced that students are more willing to put time and effort into their academic endeavors when they have a high expectation of success and are able to place a high value or perceived relevance on a particular task. Students with a high sense of self-efficacy are also more likely to establish difficult objectives and be motivated to keep trying even after failing to achieve a goal through increased effort, a demonstrated a stronger sense of control, and better problem-solving abilities (Chowkase et al., 2022; Cole et al., 2021; Drvodelić & Domović, 2021; Fontenelle-

Tereshchuk, 2021; Hinderliter et al., 2022; Jumareng et al., 2022; Kingsbury, 2021; Liao et al., 2021; Midcalf & Boatwright, 2020). Studies have identified parental involvement, learning context, and social context as additional factors influencing student self-efficacy and motivation (Al-Abdullatif & Aladsani, 2022; Alsarayreh et al., 2022; Lui et al., 2020; Nyanamba et al., 2022; Otani, 2020; Otero et al., 2020; See et al., 2020; Yang et al., 2022), particularly during the pandemic year of 2020-2021, but little research exists that considers the influence of parental perceptions of virtual learning in subsequent years.

Social Context

The influence of social persuasion from parents and other individuals in authority was identified as an important factor in determining student self-efficacy and performance in several studies conducted in the United States and abroad (Joët et al., 2011; Lam & Chan, 2016). Students who received negative feedback from parents or teachers demonstrated a noteworthy decrease in self-efficacy, regardless of the learning environment. In contrast, students who received supportive feedback from their mothers reported a higher increase in self-efficacy than students who received positive feedback from their teachers in the classroom (Joët et al., 2011; Lam & Chan, 2016). This data supports the greater impact of the role of the parent in promoting student self-efficacy over that of the teacher regardless of the physical environment in which academic learning is occurring (Almusharraf & Khahro, 2020; Bubić et al., 2020; Dunbar et al., 2018; Filippello et al., 2020; Gebauer et al., 2020; Grijalva-Quiñonez et al., 2020; Lam & Chan, 2016; Lei et al., 2022; Loh, 2019; Lynam et al., 2022; Maltais et al., 2021; Milovanska-Farrington, 2022; Otani, 2020; Otero et al., 2020; Pinquart & Ebeling, 2020; See et al., 2020; Shi & Tan, 2021; Sun et al., 2020). The impact of parental perception of the learning context as a factor in the feedback given to students has been explored in the physical school context and in

the virtual learning context of the 2020-2021 school year (Drvodelić & Domović, 2021; Fontenelle-Tereshchuk, 2021; Henderson, 2021), but is limited with regards to those students engaged in fully virtual instruction in the post-pandemic educational environment.

Learning Context

Parental perceptions of the suitability of learning from home also contributed to student academic achievement during the pandemic as parents were faced with the challenge of supporting their students engaged in online learning while working from home (Fontenelle-Tereshchuk, 2021; Henderson, 2021; Jumareng et al., 2022; Lau et al., 2021; Midcalf & Boatwright, 2020). Some studies suggested that parental supervision of the online learner at home played a significant role in the student's success (Fontenelle-Tereshchuk, 2021). However, the most common factor identified in determining the suitability of learning online was the number of interactions students engaged in with their peers during the school day (Du et al., 2018; Fontenelle-Tereshchuk, 2021; Kingsbury, 2021).

A lack of engagement with peers limited the opportunities for challenge and support was suggested as a reason for decreased student motivation in some (Du et al., 2018; Fontenelle-Tereshchuk, 2021; Kingsbury, 2021; Li et al., 2021; Schunk & DiBenedetto, 2020; Teig & Nilsen, 2022), while the absence of peer pressure and other distractions experienced in a traditional classroom setting were identified as factors contributing to the success of other students in the online environment **(**Chowkase et al., 2022; Gebauer et al., 2020; Jumareng et al., 2022). Students who have engaged in virtual learning during traditional academic years have increasing access to opportunities to interact with peers as part of the curriculum and online school setting, and lack of engagement has not been identified as a significant challenge

impacting student motivation since 2020 (Ahn et al., 2021; Chowkase et al., 2022; Cole et al., 2021; Domen et al., 2020; Heo et al., 2021; Lim et al., 2021).

The self-determination theory of motivation (SDT) suggests that a student's motivation is influenced by context (Ahn et al., 2021). Research has identified the variables of autonomy, support, and communication as influential to a student's motivation (Ahn et al., 2021; Gebauer et al., 2020; Kingsbury, 2021; Prifti, 2022). The literature reviewed supported this theory and emphasized the significance of the structure, feedback, and support from adults on student autonomy and academic outcomes in the traditional face-to-face learning context. It did not, however, examine the difference between the support of professional educators in the classroom and the support of parents providing instructional support in a virtual learning environment. Additionally, the research identified the results of teacher practices in the classroom but did not include the outcomes of synchronous teacher-led virtual instruction.

Student Life Satisfaction

An important aspect of education is the relationship between student life satisfaction and academic success. A student's overall level of life satisfaction is known as their student life satisfaction. It includes a range of aspects, including general happiness, physical health, and mental and emotional well-being. Studies have suggested that students perform better academically when they are happy with their lives, making student life satisfaction a key element in their academic achievement (Almusharraf & Khahro, 2020; Ball et al., 2016; Bureau et al., 2021; Chowkase et al., 2022; Demirtas-Zorbaz et al., 2021; Gebauer et al., 2020; Lin, 2022; Lynam et al., 2022). Research has identified increased participation as an important factor in student life satisfaction and its impact on academic success. It suggests that students are more likely to be involved and concentrated in their studies when they are happy with their lives. The

enhanced academic performance that results from this increased involvement can motivate students to stay on track with their studies (Ahn et al., 2021; Bureau et al., 2021; Domen et al., 2020; Schunk & DiBenedetto, 2020).

Furthermore, students who are content with their lives are more likely to be open to taking chances and pushing their limits, which might aid them in achieving their academic goals (Hertel & Karlen, 2021; Li et al., 2021; Lynam et al., 2022). Studies have identified student life satisfaction as an additional factor impacting academic success through enhancing problem-solving abilities and a willingness to take chances, giving them the confidence to consider alternative approaches which can enhance academic outcomes. This evidence suggests that students are more likely to be able to think critically and solve problems when they are satisfied with their social and familial context (Gebauer et al., 2020; Lei et al., 2022; Lynam et al., 2022).

Some studies have suggested that time management can have an impact on student life satisfaction and academic success. Students are more likely to be able to efficiently manage their time when they are happy with and feel in control of their lives. Students who are better able to prioritize their studies and complete their homework have been evidenced to achieve higher academic outcomes than those who struggle with organization and self-management (Bai & Gu, 2022; Ball et al., 2016; Domen et al., 2020; Du et al., 2018; Grijalva-Quiñonez et al., 2020; Heo et al., 2021; Lau et al., 2021; Li et al., 2021).

The research examined identified other factors that also contribute to increased student life satisfaction, self-efficacy, and academic achievement, including social and learning contexts and the ability to communicate with peers effectively (Adams et al., 2020; Ahn et al., 2021; Berry, 2020; Chambers & Michelson, 2020; Chowkase et al., 2022; Cole et al., 2021; Darling-Aduana et al., 2022; Demirtas-Zorbaz et al., 2021; Domen et al., 2020; Du et al., 2018; Dunbar et

al., 2018; Florenthal, 2019; Gebauer et al., 2020; Lim et al., 2021; Lynam et al., 2022; Prifti, 2022; Supervía et al., 2022). This evidence suggests that students are more inclined to communicate with peers and form relationships leading to successful academic outcomes in both virtual and face-to-face settings when they are happy with their lives. As the research has shown, contented students are more likely to be open to working with their peers, which has the potential to influence their ability to comprehend and apply the knowledge they are learning and impact their confidence and willingness to be open to taking chances and pushing their limits and impact their ability to achieve their academic goals (Adams et al., 2020; Ahn et al., 2021; Berry, 2020; Chambers & Michelson, 2020; Chowkase et al., 2022; Cole et al., 2021; Darling-Aduana et al., 2022; Demirtas-Zorbaz et al., 2021; Domen et al., 2020; Du et al., 2018; Dunbar et al., 2018; Florenthal, 2019; Gebauer et al., 2020; Lim et al., 2021; Lynam et al., 2022; Prifti, 2022; Supervía et al., 2022). While student life satisfaction has been identified as having a measurable impact on academic success through enhancing students' engagement, problem-solving abilities, time management, self-confidence, social skills, and sense of self-worth, limited research is available which considers the influence of parental perceptions and opinions on student life satisfaction as it relates to their engagement in virtual learning and academic outcomes.

Parental Life Satisfaction

Several studies have explored the impact of parental life satisfaction on student academic achievement in the face-to-face setting (Almusharraf & Khahro, 2020; Chambers & Michelson, 2020; Chen et al., 2021; Hinderliter et al., 2022; Koutsampelas et al., 2021). Although the findings of the various studies are conflicting as to the extent of influence, the data suggested that parental life satisfaction can have a notable effect on a student's academic achievement in both face-to-face and virtual settings. The research suggested that parents are more likely to be

supportive of their student's academic endeavors when they are emotionally content and financially secure (Chambers & Michelson, 2020; Chen et al., 2021; Hinderliter et al., 2022; Koutsampelas et al., 2021; Lui et al., 2020). Parents who have high life satisfaction ratings, including marital satisfaction and parental life satisfaction, were evidenced to have the resources to financially support their student's academic pursuits, such as paying for supplies, textbooks, tutoring, and college tuition (Chambers & Michelson, 2020; Chen et al., 2021; Lui et al., 2020; Maltais et al., 2021). The data suggested that for students to thrive, having financial assistance to pursue their education is crucial, and parents who are content with their financial condition are more likely to be able to offer this type of support, leading to more successful academic outcomes than evidenced by students identified to be at-risk and from families with limited resources (Chambers & Michelson, 2020; Chen et al., 2021; Lui et al., 2020; Maltais et al., 2021). The studies reviewed suggested that parents who exhibit life satisfaction and are financially secure are more likely to be able to provide these supports, which have been identified as factors influencing student self-efficacy and academic achievement (Almusharraf & Khahro, 2020; Chambers & Michelson, 2020; Chen et al., 2021; Hinderliter et al., 2022; Koutsampelas et al., 2021).

Another factor influenced by parental financial security and life satisfaction is the level to which they are involved in their student's education. Involvement and engagement in their children's academic careers are more likely to occur when parents are experiencing job satisfaction and are able to work hours that afford them the time to be engaged in family activities and are happy with their lives. This engagement can take many different forms, such as attending parent-teacher conferences, attending extra-curricular activities, or offering to help

with schoolwork (Almusharraf & Khahro, 2020; Chambers & Michelson, 2020; Chen et al., 2021; Grijalva-Quiñonez et al., 2020; Hinderliter et al., 2022; Koutsampelas et al., 2021).

Studies have suggested that parents who exhibit life satisfaction and are financially secure are more likely to be able to provide an atmosphere of emotional support and the resources of time and money necessary for pupils to achieve their maximum academic potential. However, the data available regarding the influence of parental life satisfaction on the perception of virtual instruction and its impact on student academic outcomes is minimal. Research has, however, identified two factors that potentially impacted parental satisfaction with and perceptions of the virtual learning environment and student self-efficacy in online learning: challenges with technology and motivational obstacles challenging students learning at home (Chowkase et al., 2022; Lam & Chan, 2016). It is unclear whether parental dissatisfaction with online learning was instruction-based or in response to technological challenges. It is also unclear whether parental opinions of virtual instruction influenced the self-efficacy and academic outcomes of students participating in online learning during the 2020-2021 school year. The literature did not examine the impact of parental life satisfaction on student self-efficacy and motivation and the resulting student academic outcomes in the post-pandemic, regular instructional context.

Motivation

Bandura's (1986) social cognitive theory emphasizes the significant impact that a student's social environment has on their motivation, self-management, and ability to succeed in goal-directed learning (Schunk & DiBenedetto, 2020). For example, studies have shown that motivated students demonstrate an increased effort to complete assignments and an ability to think critically and complete difficult tasks. Motivated learners also demonstrated an improved

ability to manage their time well, and they were better able to prioritize their workload and complete classwork and homework assignments in a timely manner which significantly influenced their academic success. In addition, the research reviewed identified goal setting and student autonomy as other variables that influence a student's motivation in the physical classroom and their ability to succeed, including goals and student autonomy (Ahn et al., 2021; Amida et al., 2021; Ball et al., 2016; Berry, 2020; Bureau et al., 2021; Chowkase et al., 2022; Domen et al., 2020; Dunbar et al., 2018; Hertel & Karlen, 2021; Schunk & DiBenedetto, 2020; Teig & Nilsen, 2022). Each of these variables has been proven to significantly influence student self-efficacy and academic outcomes due to their impact on student motivation.

Learning and Performance Goals

Bandura's (1986) social cognitive theory suggested that goals have a significant correlational impact on student motivation and subsequent performance outcomes (Li et al., 2021; Schunk & DiBenedetto, 2020; Teig & Nilsen, 2022). Additionally, research studies have identified the level of difficulty, the time frame in which a student is given to attain a goal, and the specificity and timeliness of feedback to performance as variables that significantly influence student motivation and self-efficacy (Domen et al., 2020; Dunbar et al., 2018; Schunk & DiBenedetto, 2020). Short-term goals, such as performance goals, encourage students to focus on specific tasks and provide the opportunity for timely feedback to support student motivation and cultivate self-efficacy (Berry, 2020; Domen et al., 2020; Hertel & Karlen, 2021; Schunk & DiBenedetto, 2020; Teig & Nilsen, 2022). Research has identified teacher clarity and the use of both learning and performance goals as variables in student motivation and self-efficacy (Berry, 2020; Hertel & Karlen, 2021; Teig & Nilsen, 2022). While the impact of these goal-related variables on student self-efficacy and academic outcomes in the in-person classroom has been

identified, studies examining the correlation of these findings to synchronous and asynchronous virtual learning at the elementary and secondary levels are limited.

Student Autonomy

Several studies identified a correlation between student autonomy and academic achievement (Abuhassna et al., 2020; Bureau et al., 2021; Domen et al., 2020; Martinek et al., 2022; Niu et al., 2022; Shi & Tan, 2021; Wong et al., 2020). Student autonomy includes a range of elements, including the availability of resources, the degree of control students have over their education, and the quantity of assistance they get from instructors and other school personnel. The literature reviewed identified a need for a sense of autonomy to support student motivation and self-efficacy (Ahn et al., 2021; Dunbar et al., 2018; Schunk & DiBenedetto, 2020). Studies have shown a correlation between student autonomy, motivation, and successful academic outcomes. They have emphasized the importance of student choice, the assignment of targeted and relevant tasks, and the cultivation of intrinsic goals to support student self-efficacy (Berry, 2020; Domen et al., 2020; Dunbar et al., 2018; Hertel & Karlen, 2021; Schunk & DiBenedetto, 2020; Teig & Nilsen, 2022).

The research reviewed suggested that pupils perform better academically when they have greater control over their learning environment in the face-to-face setting and online (Abuhassna et al., 2020; Bureau et al., 2021; Domen et al., 2020; Martinek et al., 2022; Niu et al., 2022; Shi & Tan, 2021; Wong et al., 2020). This includes the influence of allowing students the opportunity to make choices regarding their learning that encourages a sense of responsibility and personal engagement in their studies (Amida et al., 2021; Hao et al., 2020; Hertel & Karlen, 2021; Kommers & de Haan, 2021; Ouyang et al., 2021; Wang & Lin, 2021). Additionally, a sense of autonomy has been identified as a factor in student engagement and self-efficacy, as

students are more likely to feel appreciated and respected when they have more control over their education, resulting in increased motivation to engage in class activities and work cooperatively with peers (Adams et al., 2020; Ahn et al., 2021; Berry, 2020; Bureau et al., 2021; Darling-Aduana et al., 2022; Du et al., 2018; Dunbar et al., 2018; González-Benito et al., 2021; Grijalva-Quiñonez et al., 2020; Kohli et al., 2018; Lynam et al., 2022). Studies have proven that student autonomy can result in higher levels of self-worth and self-assurance by increasing involvement and promoting a sense of accomplishment when academic choices lead to achievement. This sense of achievement has been evidenced to encourage risk-taking and asking questions for support, increase perseverance, and promote collaboration among peers as they seek to attain specific goals through individual learning choices, resulting in increased performance in academic achievement (Adams et al., 2020; Ahn et al., 2021; Berry, 2020; Bureau et al., 2021; Darling-Aduana et al., 2022; Du et al., 2018; Dunbar et al., 2018; González-Benito et al., 2021; Grijalva-Quiñonez et al., 2020; Kohli et al., 2018; Lynam et al., 2022).

There is, however, a gap in the research regarding the influence of parental perceptions of virtual instruction on the learner's ability to attain and utilize student autonomy in the homeschool online setting where parental supervision has the potential to have a considerable impact on the learning environment and opportunities (Al-Abdullatif & Aladsani, 2022; Almusharraf & Khahro, 2020; Alsarayreh et al., 2022; Bai & Gu, 2022; Chowkase et al., 2022; Du et al., 2018; Grijalva-Quiñonez et al., 2020; Lau et al., 2021; Loh, 2019; Maltais et al., 2021; See et al., 2020). As virtual learning continues to evolve as an option for all learners, schools continue to enforce the same pedagogical practices and expectations for all students and staff, whether in-person or online, to provide equal access to rigorous, relevant, and appropriate instruction for all learners, regardless of educational setting (Chowkase et al., 2022; Kingsbury,

2021). While the available studies have examined student autonomy in both the traditional classroom and online environments, limited research has been done on K-12 students in a virtual setting outside of the 2020-2021 academic year.

Parental Involvement

Parental involvement in their child's academic experience has also been identified as an influential factor in student motivation (Bureau et al., 2021; Hinderliter et al., 2022; Hornstra et al., 2022; Lui et al., 2020; Maltais et al., 2021; Otero et al., 2020). In the face-to-face setting, parental involvement in direct instruction is limited to volunteer support roles in the classroom and school community, while parents of homeschoolers, including virtual learners, often assume instructional roles, either as teacher or learning coach (Al-Abdullatif & Aladsani, 2022; Alsarayreh et al., 2022; Liao et al., 2021; Nyanamba et al., 2022; Otani, 2020; Otero et al., 2020; See et al., 2020). Studies have suggested that parents who are more directly involved in the learning process, such as in homeschooling and virtual instruction, play a substantially more extensive role in influencing student motivation than parents whose children have regular interactions with other teachers and adults in the educational environment (Al-Abdullatif & Aladsani, 2022; Alsarayreh et al., 2022; Liao et al., 2021; Lui et al., 2020; Nyanamba et al., 2022; See et al., 2020; Yang et al., 2022). While the parental perception of school may not directly influence student academic outcomes, studies suggested that those perceptions can have a meaningful impact on the degree to which parents choose to be involved in the school community and related activities (Al-Abdullatif & Aladsani, 2022; Drvodelić & Domović, 2021; Fontenelle-Tereshchuk, 2021; Lui et al., 2020; Nyanamba et al., 2022; Otani, 2020; Schueler et al., 2014; See et al., 2020; Yang et al., 2022).

Several studies have identified parental involvement in student academic performance in the in-person setting (Bureau et al., 2021; Grijalva-Quiñonez et al., 2020; Lui et al., 2020; Lynam et al., 2022; Maltais et al., 2021; Otero et al., 2020; See et al., 2020; Shi & Tan, 2021; Sun et al., 2020) and in the post-pandemic virtual setting (Al-Abdullatif & Aladsani, 2022). The research reviewed identified a significant influence on the academic outcomes of a student based on the level of parental involvement (Al-Abdullatif & Aladsani, 2022; Bureau et al., 2021; Grijalva-Quiñonez et al., 2020; Lui et al., 2020; Lynam et al., 2022; Maltais et al., 2021; Otero et al., 2020; See et al., 2020; Shi & Tan, 2021; Sun et al., 2020). The need for increased supervision of schooling in the home setting was identified as a factor that increased parental participation and affected student academic performance. During the 2020-2021 school year, studies identified an increased parental awareness of their online student's academic progress as they became actively involved in their learning. The research suggested that the parent's proximity to the homeschooled student allowed the parents to identify and respond to student needs and provide more timely assistance, remediation, and counseling throughout the academic day. This, in turn, resulted in increased learning outcomes for many online students (Al-Abdullatif & Aladsani, 2022; Alsarayreh et al., 2022; Drvodelić & Domović, 2021; Fontenelle-Tereshchuk, 2021; Henderson, 2021; Lui et al., 2020; Nyanamba et al., 2022; Otani, 2020; Schueler et al., 2014; See et al., 2020; Yang et al., 2022).

Students engaged in learning in both the face-to-face environment whose parents provided measurable support at home with school-related tasks and involvement in both classroom and extra-curricular activities exhibited a higher degree of self-efficacy and realized positive academic outcomes than those students whose parents were less engaged in their child's learning. Additionally, parental participation was shown to impact online student academic

performance through increased emotional support and stability. This increased emotional support was identified as a strong motivator for kids, aiding in their academic performance and ability to stay focused on their studies (Al-Abdullatif & Aladsani, 2022; Bureau et al., 2021; Grijalva-Quiñonez et al., 2020; Lui et al., 2020; Lynam et al., 2022; Maltais et al., 2021; Otero et al., 2020; See et al., 2020; Shi & Tan, 2021; Sun et al., 2020).

Some of the research suggested that parental participation may impact student academic outcomes by fostering better communication (Boonk et al., 2022; Bubić et al., 2020; Jeynes, 2022; Ma et al., 2022). Parents are more likely to be able to communicate effectively with their children when they are involved in their education, which may contribute to a more positive learning environment at school to support increased academic outcomes. In addition, the studies suggested that parents who are actively involved in their student's education are also more likely to be aware of their academic goals and are better able to offer support through enhancing goal-setting abilities. In the homeschool setting, parents are more likely to be able to assist their children in setting practical and doable goals because they are often actively involved in the learning process (Al-Abdullatif & Aladsani, 2022; Boonk et al., 2022; Bureau et al., 2021; Grijalva-Quiñonez et al., 2020; Lui et al., 2020; Lynam et al., 2022; Maltais et al., 2021; Otero et al., 2020; See et al., 2020; Shi & Tan, 2021; Sun et al., 2020). The research suggested that students from active parental participation in the learning process by consistently monitoring their student’s progress and providing ongoing support to maintain academic motivation and focus, which will boost their grades. Academic success has been identified as a major factor influencing student self-efficacy and, ultimately, academic achievement (Adams et al., 2020; Bai & Gu, 2022; Boonk et al., 2022; Bubić et al., 2020; Du et al., 2018; Gebauer et al., 2020; González-Benito et al., 2021; Heo et al., 2021; Lam & Chan, 2016; Lei et al., 2022; Murayama et

al., 2021; Prifti, 2022; Sun et al., 2020; Supervía et al., 2022; Tarkar et al., 2022; Wang et al., 2022; Zysberg & Schwabsky, 2021).

Parental participation can significantly enhance a student's performance by increasing emotional support, access to resources, monitoring, communication, goal-setting abilities, and supporting an increased self-efficacy resulting in increased academic achievement. The research identified parental participation and support as a motivating factor in student achievement in both the face-to-face and virtual learning environments, suggesting that active participation is necessary for all students, regardless of physical educational context, to achieve their maximum academic potential (Adams et al., 2020; Bai & Gu, 2022; Boonk et al., 2022; Bubić et al., 2020; Du et al., 2018; Gebauer et al., 2020; González-Benito et al., 2021; Heo et al., 2021; Jeynes, 2022; Lam & Chan, 2016; Lei et al., 2022; Ma et al., 2022; Murayama et al., 2021; Prifti, 2022; Sun et al., 2020; Supervía et al., 2022; Tarkar et al., 2022; Wang et al., 2022; Zysberg & Schwabsky, 2021). However, while several studies evidenced the impact of parental participation on student academic success, limited research considers the influence of parental perception of virtual instruction on parental participation in online learning and its influence on student academic outcomes.

Parental Aspiration

Several studies identified parental aspiration as a contributing factor in student academic achievement in the traditional face-to-face educational environment (Chen & Hesketh, 2021; Chen et al., 2022; Dockery et al., 2022; Khampirat, 2020; Lopez-Agudo et al., 2021; Madeeha et al., 2022; Milovanska-Farrington, 2022; Pinquart & Ebeling, 2020). Parental aspirations can greatly influence a student’s motivation to do well in school when parents instill hope and a strong belief in their potential in them. Research has shown that students of parents who hold

them to high academic standards are frequently inspired to put in extra effort to advance their student's knowledge and skills by providing them with enhanced practical and emotional assistance to support their academic performance. While the research evidenced increased levels of student anxiety and stress correlated to higher parental expectations, the influence of parental aspirations on student outcomes was identified as a factor resulting in enhanced academic performance and increased self-efficacy. Additionally, the research suggested that parental confidence regarding the quality of their child's school resulted in higher expectations of performance by the school and the student, which ultimately influenced parental satisfaction with the school (Chen & Hesketh, 2021; Chen et al., 2022; Dockery et al., 2022; Khampirat, 2020; Lopez-Agudo et al., 2021; Madeeha et al., 2022; Milovanska-Farrington, 2022; Pinquart & Ebeling, 2020). Limited studies, however, consider the influence of parental perceptions of online instruction on their academic aspirations for their student and the resulting impact on academic outcomes in virtual learning contexts.

Perception of Learning Context

While parental opinions regarding the curriculum and instructional design have been identified as variables in student achievement, perceptions of the learning context have been suggested as equally impactful regarding student outcomes (Gebauer et al., 2020; Kingsbury, 2021; Prifti, 2022). Research has shown that parents often choose the location in which they will raise their families based on the reputation of the schools for which they are districted and their perception of the learning climate within the school (Drvodelić & Domović, 2021; Koutsampelas et al., 2021; Lui et al., 2020; Milovanska-Farrington, 2022; Schueler et al., 2014). Although studies have explored the influence of parental perception in consideration of choosing

traditional face-to-face school environments, there is limited data available regarding the impact of virtual learning options on residential and community selection.

The research suggested that student and parental perception of the learning context in the face-to-face setting, including the availability of instructional resources, the curriculum, and the physical classroom environment is another notable factor directly influencing student academic achievement (Galos & Aldridge, 2021; Guo et al., 2022; Han & Ellis, 2023; Lu et al., 2022; Ramos et al., 2021; Smith et al., 2021; Yu et al., 2022). These studies suggested that a student is more likely to succeed in their academic endeavors if both the student and the parents have a positive perspective of the learning context. Parents who demonstrated favorable opinions of the learning context, including the school and instructional staff, were more supportive and encouraging of their student's learning and were more inclined to offer them additional resources to support their success. Conversely, parents with a poor opinion of the classroom and the resources employed may be less likely to support and encourage their child's academic endeavors and may not offer further resources to aid the student in succeeding. The student's study method is also impacted by how parents and students perceive the learning situation in terms of academic outcomes.

Several studies have suggested that students are more likely to be motivated to study, take the initiative to do well, and use the resources at their disposal to succeed if they have a favorable opinion of the learning environment and the materials being used. Conversely, pupils who have a poor opinion of the classroom and the resources employed can be less inclined to be motivated to study, take the initiative to perform well, and make use of the tools at their disposal (Darling-Aduana et al., 2022; Galos & Aldridge, 2021; Guo et al., 2022; Han & Ellis, 2023; Lu et al., 2022; Ramos et al., 2021; Smith et al., 2021; Yu et al., 2022).

Another component of the learning context is the manner in which teachers engage with students in the classroom. This has been identified as substantially impacting both students' and parents' perceptions of the learning context and student academic outcomes. Students are more likely to succeed in their academic studies when their teachers are motivating, encouraging, and supportive of them. The manner in which students connect with one another has an impact on how the learning context is perceived by both students and parents, as well as how well students perform academically. The learning environment in the classroom is more likely to be positive, and the students are more likely to succeed in their academic studies if they are respectful, encouraging, and supportive of one another. However, if the students are rude, unsupportive, and unencouraging of one another, the learning environment is more likely to be negative, and the students' chances of succeeding in their academic studies are decreased (Darling-Aduana et al., 2022; Galos & Aldridge, 2021; Guo et al., 2022; Han & Ellis, 2023; Lu et al., 2022; Ramos et al., 2021; Smith et al., 2021; Yu et al., 2022). Students engaged in virtual learning, however, generally experience a learning context more significantly influenced by parental supervision and the absence of many of the social constructs which may support or distract motivation and learning engagement (Almusharraf & Khahro, 2020; Alsarayreh et al., 2022; Bai & Gu, 2022; Chowkase et al., 2022; Cole et al., 2021; Domen et al., 2020; Gebauer et al., 2020; Han & Ellis, 2023; Heo et al., 2021; Kingsbury, 2021; Klosky et al., 2022; Kommers & de Haan, 2021; Lau et al., 2021).

The COVID-19 pandemic highlighted the importance of self-directed and independent learning skills as students shifted to virtual learning from home, absent the support structures of the traditional classroom setting (Du et al., 2018; Klosky et al., 2022; Han & Ellis, 2023; Kingsbury, 2021; Lau et al., 2021). The significance of learning context was highlighted as a

factor contributing to student academic success or failure in a virtual setting as parents and educators reflected on student progress during the 2020-2021 school year, comparing the achievement of students who remained face-to-face with those who attended school online (Jumareng et al., 2022; Kingsbury, 2021; Klosky et al., 2022; Lau et al., 2021).

Perception of Student Academic Achievement

Online instruction has been an increasingly popular option for college students since 2000 (Cole et al., 2021), yet many elementary and secondary students had limited exposure to virtual learning until 2020 (Cole et al., 2021; Ouyang et al., 2021; Wang & Lin, 2021). Although virtual platforms have been available to all levels of education since 2000, only a small percentage of K-12 families chose online learning for their students prior to 2020 (Cole et al., 2021; Ouyang et al., 2021; Wang & Lin, 2021). The school closures of 2020 forced a systemic shift to online learning for all students, resulting in varying educational experiences. This abrupt shift to crisis learning in a virtual environment produced divergent opinions of online instruction from teachers, students, and parents (Almusharraf & Khahro, 2020; Alsammak et al., 2022; Bai & Gu, 2022; Darling-Aduana et al., 2022).

Parental Perception

While many schools and students quickly transitioned from blended learning classrooms to synchronous online instruction, many families struggled to navigate asynchronous instruction with limited educational technology experience (Fontenelle-Tereshchuk, 2021; Heo et al., 2021). Frustrations with navigating online educational platforms and the concern that virtual schooling would not afford their student the same equitable access to resources and curriculum content as had been experienced in face-to-face school prompted many parents to elect to keep their children enrolled in face-to-face schooling throughout the 2020-2021 school year instead of

opting into the virtual instruction offered by many schools (Gebauer et al., 2020; Henderson, 2021; Heo et al., 2021; Kingsbury, 2021; Midcalf & Boatwright, 2020). Seeking to address the social-emotional needs of their learner, some parents formed or participated in learning pods that allowed students to interact with a limited number of peers while participating in either a home school or online learning experience (Kingsbury, 2021). Despite the unique circumstances in which this shift in learning occurred, many parents did not take into consideration the lack of time and preparation, which resulted in many challenges faced by those engaged in online learning during the pandemic and attributed student failure to the learning context itself (Gebauer et al., 2020; Kingsbury, 2021).

The research reviewed identified parental perceptions of virtual instruction from a crisis perspective (Gebauer et al., 2020; Henderson, 2021; Heo et al., 2021; Hinderliter et al., 2022; Kingsbury, 2021; Midcalf & Boatwright, 2020). It does not, however, reflect the changing landscape of online learning as it continues to evolve into a standard option for all students as an alternative to the traditional face-to-face classroom (Chowkase et al., 2022; Eynon & Malmberg, 2021; Kingsbury, 2021).

Student Perception

Post-secondary and many high school students have had the opportunity to elect virtual instruction options as an alternative to the physical classroom to accommodate their individual learning needs (Heo et al., 2021; Lin, 2022; Ouyang et al., 2021; Tan et al., 2021). Among the reasons for choosing virtual instruction identified in the research was the inability to attend physical classes, scheduling conflicts, and a preference for learning in an environment absent of the traditional distractions experienced in a classroom (Cole et al., 2021; Du et al., 2018; Heo et al., 2021; Prifti, 2022; Wong et al., 2020). Studies have also identified a range of implications for

students as a result of interaction with educational technologies, from increased problem-solving and increased self-efficacy as a result of learning satisfaction and autonomy to anxiety and decreased engagement from blended learning and fully virtual experiences since 2000 (Azizi et al., 2022; Berry, 2020; Chowkase et al., 2022; Du et al., 2018; Hao et al., 2020; Heo et al., 2021; Mayer, 2019; Prifti, 2022). This suggests that both online and face-to-face instruction present similar challenges and opportunities to the learner as a result of interactions with computers and technology (Azizi et al., 2022; Berry, 2020; Chowkase et al., 2022; Du et al., 2018; Hao et al., 2020; Heo et al., 2021; Mayer, 2019; Prifti, 2022). The literature identified student perceptions of online learning from both prior to and including the pandemic crisis learning scenario (Almusharraf & Khahro, 2020; Cole et al., 2021; Du et al., 2018; Gebauer et al., 2020; Prifti, 2022; Wong et al., 2020) and their influence on student self-efficacy and learning outcomes based on interaction with educational technologies, but few studies considered other contextual factors, such as parental influence, affecting student self-efficacy in conjunction with the use of virtual learning platforms since the 2020-2021 school year.

Hierarchical multiple regression models have provided evidence of potential predictors of student engagement in virtual learning, including a sense of belonging and the ability to adapt to online learning practices (Cole et al., 2021; Ouyang et al., 2021; Wang & Lin, 2021). Similar studies have been done in face-to-face environments with similar results (Cole et al., 2021; Du et al., 2018; Gebauer et al., 2020; Prifti, 2022). This suggests that while the physical context of the educational experience can influence the ability of the student to succeed due to specific structures and supports, factors such as engagement and self-efficacy significantly impact student motivation and academic outcomes regardless of learning context (Almusharraf & Khahro, 2020; Cole et al., 2021; Domen et al., 2020; Du et al., 2018; Prifti, 2022; Wang et al., 2022; Wong et

al., 2020). This brings the emphasis back to the determinants that impact student self-efficacy and motivation, including the social influences of the perception and satisfaction of parents and other trusted authority figures.

Summary

A gap in the literature was identified regarding the effects of parental satisfaction with virtual student academic outcomes when comparing a student's performance in both the online and face-to-face learning environments beyond the pandemic year of emergency learning in 2020-2021 (Chowkase et al., 2022; Henderson, 2021; Jumareng et al., 2022; Lau et al., 2021; Midcalf & Boatwright, 2020; Wong et al., 2020). Were the realized student academic outcomes in virtual learning a result of student competence or a response to the presence or lack of parental support and perception of value in the online experience? This study seeks to fill the gap in understanding to assist educators and parents in providing equitable and viable learning experiences for all students in both face-to-face and virtual settings.

The COVID-19 global pandemic forced a transition to virtual learning for millions of students worldwide (Chowkase et al., 2022; Fontenelle-Tereshchuk, 2021; Henderson, 2021; Jumareng et al., 2022; Lau et al., 2021; Midcalf & Boatwright, 2020). This crisis-based transition addressed the educational needs of learners while allowing families to shelter at home to avoid contracting and spreading the coronavirus (Chowkase et al., 2022; Henderson, 2021; Jumareng et al., 2022; Lau et al., 2021; Midcalf & Boatwright, 2020). Researchers have examined the impact of the hurried pivot to online learning on student progress compared to previous outcomes (Fontenelle-Tereshchuk, 2021). However, they have not examined all of the variables, such as parental perception of and satisfaction with learning context, influencing online student motivation, self-efficacy, and the resulting academic outcomes in subsequent years.

Researchers have studied the opinions and responses of parents to the virtual learning experience during the pandemic (Chowkase et al., 2022; Henderson, 2021; Jumareng et al., 2022; Lau et al., 2021; Lui et al., 2020; Midcalf & Boatwright, 2020; Nyanamba et al., 2022; Yang et al., 2022), but there is a need to examine the influence of this variable on traditional online students during regular instructional years. The parental perceptions of virtual learning during the 2020-2021 school year are crisis-based and do not reflect reactions to prior or subsequent virtual learning experiences (Alsarayreh et al., 2022; Chowkase et al., 2022; Henderson, 2021; Hinderliter et al., 2022; Jumareng et al., 2022; Lau et al., 2021; Lui et al., 2020; Midcalf & Boatwright, 2020; Nyanamba et al., 2022; Yang et al., 2022). Because teacher and student experience in virtual learning have increased and administrators at the K-12 level have had the time to adequately develop standards-based online courses and programs to meet the needs of all students since the 2020-2021 school year, subsequent learning experiences have presented a more structured, rigorous, and responsive instruction compared to previous years (Chowkase et al., 2022; Lim et al., 2021).

Using Bandura's (1986) social cognitive theory to guide understanding of the influence of parental perceptions on student self-efficacy and resulting academic outcomes (Bandura, 1997; Du et al., 2018), the literature reviewed identified the impact of parental opinion and support on student performance and student perceptions of the learning environment (Cole et al., 2021; Dunbar et al., 2018; Gebauer et al., 2020; Kingsbury, 2021; Lam & Chan, 2016; Wang et al., 2022). Additionally, Wigfield's (1994) expectancy-value theory of achievement motivation was used to identify variables that impact a student's attitude and approach to learning and achievement (Ball et al., 2016; Loh, 2019; Wang et al., 2022; Wigfield & Eccles, 2000). Other studies identified the influence of parental satisfaction with their student's learning environment,

both in-person and online, as a significant factor contributing to student motivation and academic achievement (Chowkase et al., 2022; Fontenelle-Tereshchuk, 2021; Grijalva-Quiñonez et al., 2020; Hinderliter et al., 2022; Lui et al., 2020; Nyanamba et al., 2022).

A gap exists in the literature pertaining to the impact of parental perspectives toward virtual learning on student academic achievement compared to face-to-face learning. Since the 2020-2021 school year, virtual learning options have continued to expand to provide access to the curriculum and support resources for all learners equal to that available to students attending school in person (Domen et al., 2020; Flanagan & Morgan, 2021; Kommers & de Haan, 2021; Wang et al., 2022). By examining the influence of parental satisfaction with virtual learning on elementary and secondary student academic outcomes in established and accredited online learning environments during regular non-crisis instruction, a correlation between parental perspectives and student achievement based on academic level can be made to help researchers determine whether disparities exist due to learning platforms or student ability. The results of this study will provide administrators and educators with data to help design curricula, adequately plan instruction, and identify needed resources to support student success in online and in-person instruction.

CHAPTER THREE: METHODS

Overview

The purpose of this quantitative causal-comparative study was to determine the impact of parental satisfaction with online learning and student academic level on the academic outcomes of students participating in fully virtual instruction. This chapter will provide an overview of the causal-comparative research design, followed by the research questions and null hypotheses, a discussion of the participants and setting, and the instrumentation that was used for data collection. This chapter concludes with the data analysis.

Design

This study used a non-experimental causal-comparative design to determine the impact of parental perceptions of virtual instruction and student academic level on online student academic outcomes among elementary and secondary learners. Gall et al. (2007) suggested that research that seeks to determine cause-and-effect relationships between variables is often selected in educational research because of its consistency with the worldviews of educational stakeholders. This design was most appropriate for this study because it allowed the researcher to determine the cause-and-effect relationships (Gall et al., 2007) between favorable and unfavorable parental perceptions with virtual instruction and student academic level on online student achievement. Wigfield's (1994) expectancy-value theory of motivation identified a correlation between parental behaviors and student motivation. Additional research identified the influence of parental expectations on student behavior and learning engagement (Bandura, 1977; Mayer, 2019; Ouyang et al., 2021).

This causal-comparative study determined the causal effects of parental perceptions of virtual learning (independent variable) and academic level (independent variable) on student

academic outcomes (dependent variable). Parental perception is perspective of the parent regarding the quality of instruction and school climate (Bahena et al., 2015; Schueler et al., 2014). Academic level refers to the grade level of the K-12 student (Berry, 2020; Teig & Nilsen, 2022; Zhu, 2021). The academic levels for this study are elementary and secondary. Elementary school students are those in grades in grades 4 and 5. Secondary school students are students in grades 6 through 12. Academic outcomes are the academic performance or realized achievement values of the student evidenced in year-end course grades (Bubić et al., 2020; Chen et al., 2021; Demirtas-Zorbaz et al., 2021; González-Benito et al., 2021; See et al., 2020). For this study, the student academic outcome value was the average of parent-reported grades for the four core content courses: Math, Language Arts, Science, and Social Studies. Previous studies suggested that parents accurately reported a child's academic achievement when they were identified as a normal learner (American Academy of Pediatrics, 2001; Gilger, 1992). The Panorama Family-School Relationships Survey (Schueler et al., 2014) was used to measure the overall parental perception of the online learning environment.

Research Question

RQ1: Is there a difference in *online student combined core content grade averages* among elementary and secondary online students based on their parent's perceptions of virtual instruction?

Hypotheses

The null hypotheses for this study are:

$H_0$1: There is no difference in *online student combined core content grade averages* between elementary and secondary students.

$H_0$2: There is no difference in *online student combined core content grade averages* based on their parent's satisfaction with virtual instruction as measured by the Panorama Family-School Relationships Survey.

$H_0$3: There is no interaction between school academic level, elementary or secondary, and parent perception level as measured by the Panorama Family-School Relationships Survey on *online student combined core content grade averages*.

Participants and Setting

A convenience sample of 139 parents from a target population of students who were enrolled in virtual instruction for the most recent completed school year (2022-2023) through their local school district in central Virginia were surveyed for this causal-comparative study. The participants were drawn from a target population of parents of elementary, middle, and high school online learners, representing a probability sampling who are representative of the entire population of online learners in this community (Creswell & Guetterman, 2019) for a medium effect size with the statistical power of .7 and an alpha of .05 (Gall et al., 2007, p. 145). The setting of the study was online.

Population

The participants for this study were drawn from a convenience sample of a target population of elementary, middle, and high school online learners and their parents located in central Virginia. The school district that was sampled is located in a largely middle-to-upper-income suburb outside of Richmond. The virtual learning platform was available to all students for the 2022-2023 academic year in this district and, therefore, represents students from all districted schools, which includes low-income and disadvantaged learners. The county served by this district has a population of approximately 350,000 people with a median household income

of $68,000. According to the Virginia Department of Education (VDOE, n.d.), the five largest ethnic groups in this county are White (Non-Hispanic) (52%), Black or African-American (Non-Hispanic) (30.1%), Asian (Non-Hispanic) (8.53%), Two+ (Non-Hispanic) (3.08%), and White (Hispanic) (2.47%).

Participants

For this study, the number of participants that were sampled was 139 parents of students who were enrolled in virtual instruction for the 2022-2023 school year. This convenience sample came from a target population of parents of elementary, middle, and high school online students enrolled in the county's online learning platform for the 2022-2023 school year. According to Gall et al. (2007), this sample represents the required minimum of 126, evenly distributed between the groups, when assuming a medium effect size for an analysis of covariance when assuming a medium effect size with a statistical power of .7 and an alpha level of .05. The sample consisted of 68 elementary parents, 47 middle school parents, and 24 high-school parents.

Setting

This study was conducted through an online survey delivered to participants via e-mail, allowing for a timely, convenient, and efficient means of collecting data. The Google Form survey was hosted on a secure website, ensuring the confidentiality and privacy of participants' anonymous responses. Participants were able to complete the survey at their own pace and in their own time, without the constraints of a physical location or scheduled appointment. The online setting supports the potential for maximized participation by ensuring anonymity and minimizing logistical challenges such as time and transportation.

Instrumentation

The instrument that was used to conduct this study is the Panorama Family-School Relationships Survey (Schueler et al., 2014). See Appendix A for the instrument. The purpose of this instrument was to measure parental perceptions of virtual instruction to determine if a difference in parental satisfaction influences elementary and secondary online student academic outcomes. This instrument was developed because of a lack of valid instrumentation available to measure parental perceptions while still assessing an overall conception of school climate (Schueler et al., 2014). Previously existing instruments were lengthy and generally focused on one component of the school environment (Schueler et al., 2014).

The Panorama Family-School Relationships Survey was developed using Gehlbach and Brinkworth's six-step process for designing survey instruments and includes question prompts from each of the four domains of school climate as identified by previous research: 1) teaching and learning, 2) relationships, 3) safety, and 4) physical environment (Cohen et al., 2009; Schueler et al., 2014). Two subscales were developed to measure academic and social climate based on parental perceptions of how supportive the school environment is for student well-being, learning, and social development (Schueler et al., 2014).

The survey has been used successfully in multiple settings, including schools and research studies. Numerous schools have used this instrument to identify perceived strengths and areas of needed improvement in the educational environment (Panorama Education, n.d.; Schueler et al., 2014). It has been used by multiple school districts throughout the United States, including Iowa, Missouri, Kentucky, New York, Utah, Oregon, and California, and was found to be a valuable tool for identifying areas for improvement in family-school relationships and informing targeted interventions (Gehlbach, 2015; Panorama Education, n.d.). Additionally, studies have shown that this survey is effective in measuring changes in family-school

relationships over time, demonstrating its sensitivity to change (Gehlbach, 2015; Panorama Education, n.d.; Schueler et al., 2014).

The survey developers conducted three independent studies with national samples to gather evidence and determine the reliability and valid score references of the instrument using confirmatory factor analysis (Schueler et al., 2014). The survey's reliability is demonstrated through its consistency in measuring family-school relationships across different populations and contexts, producing consistent results over time. The instrument's internal consistency is high, indicating that the items are measuring the same construct (Gehlbach, 2015; Panorama Education, n.d.; Schueler et al., 2014). The findings of Schueler et al.'s (2014) study reported measures of the reliability of the Panorama Family-School Relationships survey instrument as high. Reliability analyses and descriptive statistics were used to assess item and scale level variability (Schueler et al., 2014). Bahena et al. (2015) reported that the instrument demonstrated strong internal consistency, with the scale adequately measuring the intended construct in all three samples with evidence of convergent and divergent validity and the presence of measurement invariance. The factor loadings from these analyses were moderate to high and total scores had strong internal consistency ($\alpha = .91$) (Schueler et al., 2014). The estimate for coefficient alpha for every scale is .70 or greater. A Cronbach's alpha of 0.88 was reported for the Satisfaction Scale, 0.91 for the Climate Scale, and 0.87 for the Self-Efficacy Scale. The Cronbach's alpha of the overall satisfaction items was 0.90 (Gehlbach, 2015; Schueler et al., 2014).

The Panorama Family-School Relationships survey consists of a series of scales focusing on different facets of the school environment designed to capture parental perceptions of each (Panorama Education, n.d.; Schueler et al., 2014). It consists of nine topics with 5 to 13 questions

each that may be used independently or collectively: Family Engagement, School Fit, Family Support, Family Efficacy, Learning Behaviors, School Climate, Barriers to Engagement, Grit, and School Safety (Panorama Education, n.d.; Schueler et al., 2014). The total number of questions within these topics surveyed was 29. Each question within the nine topics is associated with a 5-point Likert scale on a questionnaire to determine an overall satisfaction index. The Roles and Responsibilities and School scale was not be used in this study. Participants responded to each question based on an overall satisfaction index with a five-point range with answer choices correlating to the nature of the question (Schueler et al., 2014). Responses are as follows: 5= Extremely, 4= Frequently/Quite, 3= Somewhat, 2= Slightly, and 1= Never/Not at All (Bahena et al., 2015; Panorama Education, n.d.; Schueler et al., 2014). The mean of participant response points within each topic on was used to determine the parental satisfaction category value. The higher the mean score, the higher the favorability (Sullivan & Artino, 2013). The higher the chosen response is on the scale, the greater the parental satisfaction based on perception (Panorama Education, n.d.; Schueler et al., 2014). Student combined core content grade averages was calculated from parent-reported grades. Parents provided the student's final grades from the four core content courses when completing the survey.

The approximate completion time for the survey was 15 minutes (Schueler et al., 2014). The instrument was administered through an online survey in accordance with the instructions included in the instrument. Permission to use the Panorama Family-School Relationships survey has been acquired; see Appendix B.

Procedures

IRB Permission was obtained from Liberty University; see Appendix C. Permission was obtained from the school district to survey the parents of students who were enrolled in fully

virtual instruction for the 2022-2023 school year; see Appendix D. The Panorama Family-School Relationships Survey was used to collect data on parental perceptions of virtual instruction. Additionally, parents were asked to disclose the related student year-end grades in the four core content subjects of Math, Language Arts, Social Studies, and Science. Approval to use the Panorama Family-School Relationships Survey instrument was obtained; see Appendix B. The principal of the online learning platform in the school district was contacted via email by the researcher to request the dissemination of the survey to participants. Permission to disseminate the online survey to parents via email was obtained from the Director of Accreditation and Accountability; see Appendix E. Participants signed an electronic informed consent form prior to responding to the anonymous survey; see Appendix F.

Using the online survey platform Google Forms, the researcher launched the Panorama Family-School Relationships Survey and provided the school principal with the link to disseminate it to parents. See Appendix A for the Panorama Family-School Relationships Survey sample. The researcher collected the data from the survey to determine parental perception scores (independent variable), student academic levels (independent variable), and student core content grade averages (dependent variable). Parental perception scores were determined by calculating the mean of participant response points within each topic on a scale of 1 to 5. The lowest satisfaction score identified in this survey was 3.0. As a result, for this study, a mean satisfaction score between 3.0 and 3.52 represented lower perception (Level 1). Medium satisfaction scores (Level 2) ranged between 3.53 and 4.20. Scores of 4.21 and above indicated high satisfaction (Level 3) with their online learning experience. Student core content grade averages were determined using the parent-reported grade for each of the four core courses: Math, Language Arts, Science, and Social Studies. The four grades were averaged, providing the

data values for the dependent variable. Since the parents report the grades, they were connected in the data file with the results from the survey.

The researcher then imported the data into SPSS for analysis. At all stages of data collection, all information that could identify the participants was protected. Data was stored securely, and only the researcher had access to records. Data was stored on a password-protected computer. The data will be retained for a period of five years after the completion of this research study.

Data Analysis

A two-way analysis of variance (ANOVA) was used to analyze the data collected with the Panorama Family-School Relationships Survey. A Two-Way ANOVA is used when there are two categorical independent variables and one continuous dependent variable (Gall et al., 2007). This study seeks to examine the impact of parental perceptions of virtual instruction (independent variable) and elementary and secondary student academic level (independent variable) on student combined core content grade averages (dependent variable) in the virtual learning environment.

The analysis process outlined in Gall et al. (2007) for a causal-comparative study was followed to test the hypotheses. A causal-comparative design was used to determine whether a cause-and-effect relationship exists between variables (Gall et al., 2007). Prior to analysis, the data spreadsheet was first visually screened for missing or inaccurate entries. Then, it was screened for possible errors resulting from the conversion of data from Google Sheets, where the data was collected from the survey to Microsoft Excel format for analysis. Responses were screened and assigned a categorical label to identify academic level: Elementary = 1, Secondary = 2. The core content grade average for each response was identified by determining the mean of

parent reported year end grades in each of the four core content subjects. A point value was assigned to each letter grade: A=5, B=4, C=3, D=2, and F=1. A parental satisfaction score was determined for each participant by averaging their responses to each of the 29 questions. Satisfaction scores were then sorted into three perception levels based on their mean; Level 1 (3.0-3.52), Level 2 (3.53-4.20), and Level 3 (4.21-5). The data was then sorted into three columns (core content grade average, parental perception score, and academic level) and uploaded to SPSS. It was then screened for outliers. Extreme outliers were removed.

To better understand that data, an exploratory data analysis was conducted using descriptive statistics. Descriptive statistics are used to organize and summarize numerical data in the quantitative analysis process (Gall et al., 2007). The mean, a measure of central tendency, was calculated for each group. Also, the variability of academic outcomes for each group was measured using standard deviation.

Assumption testing then followed. A box and whisker plot was used to identify extreme outliers in both groups; parents with favorable perception ratings of virtual instruction (independent variable) and parents with dissatisfactory ratings of virtual instruction (independent variable) and elementary and secondary students (independent variable). Due to the sample size, the Kolmogorov-Smirnov test was run to determine the normality of the sampling. Levene's Test of Equality of Error Variance was used to test the assumption of homogeneity of variances (Gall et al., 2007).

A two-way analysis of variance (ANOVA) was planned to test the hypotheses, as the assumptions were that the scores were from a scale of measurement, the populations under study are normally distributed, and the score variances under study were equal (Gall et al., 2007). A Two-Way ANOVA is used to determine if an interaction effect existed between online student

academic achievement based on parental perceptions of virtual learning and student academic level. The *F* statistic is the ratio of variances between two groups (Gall et al., 2007). The *F* value determines if there is a more significant difference in scores based on parental satisfaction with virtual instruction or within academic level (Gall et al., 2007). The *p*-value is a statistical measure that helps determine the significance of the results obtained in a research study (Gall et al., 2007). A *p* value of < .05 was planned to reject the null hypothesis. The effect size would be determined using partial eta squared (η_p^2).

CHAPTER FOUR: FINDINGS

Overview

The purpose of this study was to determine if there is a difference in academic outcomes of elementary and secondary students based on the level of parental perceptions of online learning. Assumptions for a Two-way Analysis of Variance (ANOVA) were analyzed. The independent variables were parental perceptions of virtual learning and student academic level, and the dependent variable was student academic outcomes. This chapter includes the research question, null hypothesis, descriptive statistics, assumption testing, and results.

Research Question

RQ1: Is there a difference in *online student combined core content grade averages* among elementary and secondary online students based on their parent's perceptions of virtual instruction?

Null Hypotheses

$H_0$1: There is no difference in *online student combined core content grade averages* between elementary and secondary students.

$H_0$2: There is no difference in *online student combined core content grade averages* based on their parent's satisfaction with virtual instruction as measured by the Panorama Family-School Relationships Survey.

$H_0$3: There is no interaction between school academic level, elementary or secondary, and parent perception level as measured by the Panorama Family-School Relationships Survey on *online student combined core content grade averages*.

Descriptive Statistics

Descriptive statistics were obtained on the dependent variable for each group. The sample

consisted of 139 participants. The descriptive statistics reflect the removal of two extreme outlier data points. Scores on the Core Content Grade Average scores range from one to five. A high score of five means that the student attained all A's, whereas a low score of one means that the student demonstrated poor academic achievement with all F's. Parental satisfaction scores were divided into three approximately equal groups. These groups are represented by levels: Level 1 represents parental satisfaction scores of 3.0–3.52; Level 2 represents satisfaction scores of 3.53-4.2, and Level 3 represents scores of 4.21-5.0. The survey did not produce any parental satisfaction scores below 3.0. Descriptive statistics can be found in Table 1.

Table 1

Descriptive Statistics

Dependent Variable: Core content grade average

Student academic level	Parent satisfaction level	*n*	*M*	*SD*	Skewness
Elementary	Level 1	22	3.99	1.04	-.594
	Level 2	25	4.18	.74	-.844
	Level 3	20	4.80	.24	-1.255
	Total	67	4.30	.82	-1.229
Secondary	Level 1	21	4.43	.64	-1.582
	Level 2	24	4.31	.78	-1.376
	Level 3	25	4.57	.59	-1.198
	Total	70	4.44	.68	-1.4127
Total	Level 1	43	4.20	.89	-1.054
	Level 2	49	4.24	.76	-1.063
	Level 3	45	4.67	.48	-1.722
	Total	137	4.37	.75	-1.366

Results

The process for a Two-Way ANOVA was started to determine if a statistically significant difference exists in student grade averages among elementary and secondary students when considering parental satisfaction.

Assumptions

A two-way analysis of variance (ANOVA) involves several assumptions to ensure the validity of the statistical results (Gall et al., 2007; Laerd Statistics, n.d.-a). The first assumption is that there is one continuous dependent variable (Laerd Statistics, n.d.-a). The dependent variable for this study was the student core content grade average, the mean of the parent-reported year-end grades. A point value was assigned to each parent-reported letter grade (A=5, B=4, C=3, D=2, and F=1) in each of the four core content subjects: Math, Language Arts, Science, and Social Studies and the mean was determined using a scale of measurement from one to five.

The second assumption is that there are two categorical independent variables that consist of two or more groups each (Laerd Statistics, n.d.-a). The two independent variables for this study were student academic level (Elementary= 1, Secondary= 2) and parental perception level. A parental satisfaction score was determined for each participant by averaging their responses to each of the 29 questions. Satisfaction scores were then sorted into three categorical perception levels based on their mean; Level 1 (3.0-3.52), Level 2 (3.53-4.20), and Level 3 (4.21-5).

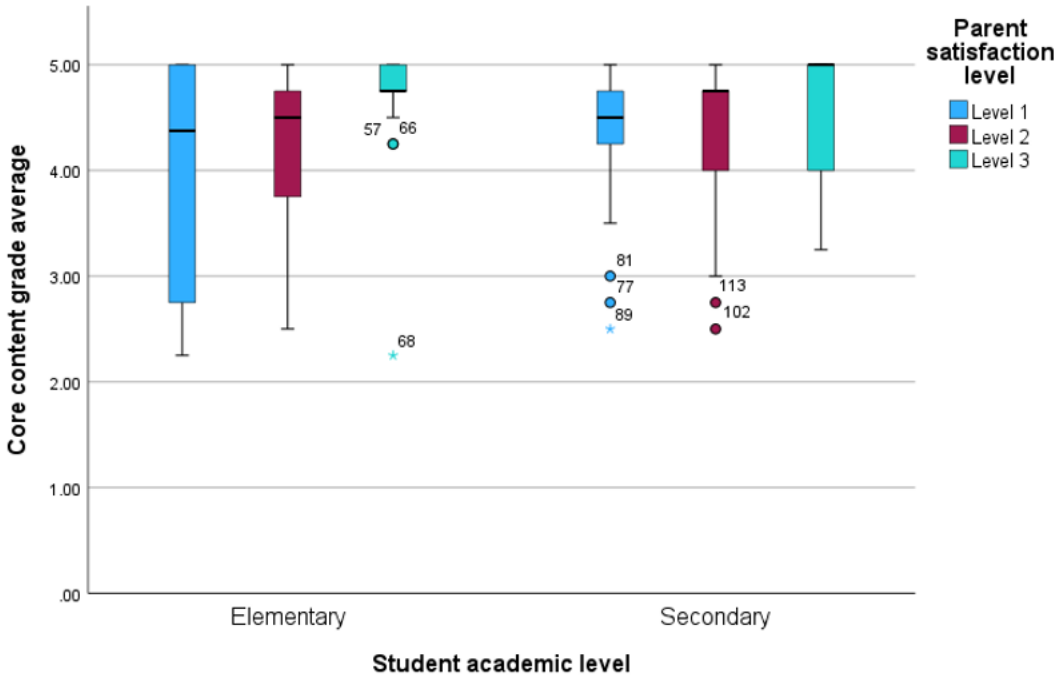
The third assumption is that the study consists of independent observations (Laerd Statistics, n.d.-a). No participants in this study were members of more than one of each of the categorical groups. Participants were either elementary or secondary and each was categorized by the mean of one perception level.

Assumption of Absence of Extreme Outliers

Data screening was conducted on each group's dependent variable. The researcher sorted the data on each variable and scanned for inconsistencies. No data errors or inconsistencies were identified. The fourth assumption for a Two-Way ANOVA is that no extreme outliers exist in the data. Box and whisker plots were used to detect outliers on each dependent variable. There were two extreme outliers, data points 68 and 89, as assessed as being greater than three box-lengths from the edge of the box in a boxplot, which were removed. The assumption of no extreme outliers for the analyzed data was met. See Figure 1 for box and whisker plot.

Figure 1

Core Content Grade Average by Student Academic Level by Parent Satisfaction Level



Assumption of Normal Distribution

The fifth assumption of a Two-Way ANOVA is that the dependent variable, student grades, should be approximately normally distributed within each independent variable group. Data was not normally distributed, as assessed by the Kolmogorov-Smirnov test ($p \leq .05$). The

assumption of normality was not met. The significant value across all groups fell well below the .05 threshold. See Table 2 for Tests of Normality.

Table 2

Tests of Normality (Original Data)

Student academic level	Parental satisfaction level		Kolmogorov-Smirnov[a] Statistic	*n*	*p*	Shapiro-Wilk Statistic	*n*	*p*
Elementary	1.00	Residual for grade_average	.236	22	.003	.824	22	.001
	2.00	Residual for grade_average	.220	25	.003	.882	25	.008
	3.00	Residual for grade_average	.267	20	<.001	.763	20	<.001
Secondary	1.00	Residual for grade_average	.259	21	<.001	.797	21	<.001
	2.00	Residual for grade_average	.420	24	<.001	.657	24	<.001
	3.00	Residual for grade_average	.286	25	<.001	.742	25	<.001

a. Lilliefors Significance Correction

Assumption of Homogeneity of Variance

The Two-Way ANOVA requires that the assumption of homogeneity of variance be met. The assumption of homogeneity of variance was examined using the Levene's test. The assumption of homogeneity of variance was not met, as assessed by Levene's Test of Equality of Error Variance, $p < .001$. A statistically significant result, ($p \leq .05$) indicates that the assumption is violated (Laerd Statistics, n.d.-a). See Table 3 for Levene's test of Equality of Error Variances.

Table 3

Levene's Test of Equality of Error Variances[a,b] (Original Data)

		Levene Statistic	*df1*	*df2*	*p*
Core content grade average	Based on Mean	9.122	5	131	<.001
	Based on Median	3.217	5	131	.009
	Based on Median and with adjusted df	3.217	5	101.986	.010
	Based on trimmed mean	7.822	5	131	<.001

Tests the null hypothesis that the error variance of the dependent variable is equal across groups.

a. Dependent variable: Core content grade average

b. Design: Intercept + academic_level + satisfaction_level + academic_level * satisfaction_level

Transformation of Data

To obtain valid results from a parametric test, such as a Two-Way ANOVA, common assumptions include a normal distribution of the dependent variable in each group of the independent variable as well as homogeneity of variances within the dependent variable (Gall et al., 2007; Laerd Statistics, n.d.-a). When assumptions are violated, an option to continue with a Two-Way ANOVA is to transform the dependent variable (Laerd Statistics, n.d.-a). A moderate negative skew value is -.5 and -1, and strongly skewed data is below -1 (Wagner & Gillespie, 2019; Warner, 2013). The skewness of the data in all groups falls below -.5. In four of the six groups, the data falls below -1; therefore, the data is considered strongly skewed. See Table 1 for skewness values.

Reflect and Logarithmic Transformation

To convert strongly negatively skewed data to normal, the first transformation attempt should be to apply a reflect and logarithmic transformation (Laerd Statistics, n.d.-b). For the transformation, each data point is subtracted from the highest value in the data set increased by one, then logged.

Assumption of Normal Distribution. The fifth assumption of a Two-Way ANOVA is that the dependent variable, student grades, should be approximately normally distributed within each independent variable group. The transformed data was normally distributed in only one category (Level 1 Elementary), as assessed by the Kolmogorov-Smirnov test ($p \leq .05$). The assumption of normality was not met. The significant value across five of the six groups fell below the .05 threshold. The significant value across four of the six groups fell substantially below the .05 threshold. See Table 4 for Tests of Normality.

Table 4

Tests of Normality (Logged Data)

Parent satisfaction level	Student academic level		Kolmogorov-Smirnov[a]			Shapiro-Wilk		
			Statistic	*n*	*p*	Statistic	*n*	*p*
Level 1	Elementary	Residual for grade_average	.167	22	.115	.855	22	.004
	Secondary	Residual for grade_average	.194	21	.037	.885	21	.018
Level 2	Elementary	Residual for grade_average	.222	25	.003	.915	25	.040
	Secondary	Residual for grade_average	.420	24	<.001	.681	24	<.001
Level 3	Elementary	Residual for grade_average	.266	20	<.001	.787	20	<.001
	Secondary	Residual for grade_average	.304	25	<.001	.765	25	<.001

a. Lilliefors Significance Correction

Assumption of Homogeneity of Variance. The Two-Way ANOVA requires that the assumption of homogeneity of variance be met. The assumption of homogeneity of variance was examined using the Levene's test. The assumption of homogeneity of variance was not met, as assessed by Levene's Test of Equality of Error Variance, $p < .001$. A statistically significant

result, ($p \leq .05$) indicates that the assumption is violated (Laerd Statistics, n.d.-a). See Table 5 for Levene's test of Equality of Error Variances.

Table 5

Levene's Test of Equality of Error Variances[a,b] (Logged Data)

		Levene Statistic	*df1*	*df2*	*p*
Core content grade average	Based on Mean	5.365	5	131	<.001
	Based on Median	2.634	5	131	.026
	Based on Median and with adjusted df	2.634	5	97.447	.028
	Based on trimmed mean	4.843	5	131	<.001

Tests the null hypothesis that the error variance of the dependent variable is equal across groups.

a. Dependent variable: Core content grade average

b. Design: Intercept + parent_satisfaction + academic_level + parent_satisfaction * academic_level

Reflect and Inverse Transformation

Since the first transformation continues to violate the assumptions, a second transformation was attempted. To convert extremely negatively skewed data a reflect and inverse transformation is advisable (Laerd Statistics, n.d.-b). For the transformation, each data point is subtracted from the highest value in the data set increased by one, then inverted.

Assumption of Normal Distribution. The fifth assumption of a Two-Way ANOVA is that the dependent variable, student grades, should be approximately normally distributed within each independent variable group. The assumption of normality was not met. Data was normally distributed in only two categories (Level 1 Elementary and Level 1 Secondary), as assessed by the Kolmogorov-Smirnov test ($p \leq .05$). The significant value across four of the six groups fell well below the .05 threshold. See Table 6 for Tests of Normality.

Table 6

Tests of Normality (Inverted Data)

Parent satisfaction level	Student academic level		Kolmogorov-Smirnov[a] Statistic	*n*	*p*	Shapiro-Wilk Statistic	*n*	*p*
Level 1	Elementary	Residual for grade_average	.171	22	.095	.858	22	.005
	Secondary	Residual for grade_average	.142	21	.200*	.920	21	.086
Level 2	Elementary	Residual for grade_average	.209	25	.006	.913	25	.035
	Secondary	Residual for grade_average	.415	24	<.001	.705	24	<.001
Level 3	Elementary	Residual for grade_average	.279	20	<.001	.797	20	<.001
	Secondary	Residual for grade_average	.318	25	<.001	.770	25	<.001

*. This is a lower bound of the true significance.

a. Lilliefors Significance Correction

Assumption of Homogeneity of Variance. The Two-Way ANOVA requires that the assumption of homogeneity of variance be met. The assumption of homogeneity of variance was examined using the Levene's test. The assumption of homogeneity of variance was not met, as assessed by Levene's Test of Equality of Error Variance, $p < .001$. A statistically significant result, ($p \leq .05$) indicates that the assumption is violated (Laerd Statistics, n.d.-a). See Table 7 for Levene's test of Equality of Error Variances.

Table 7

Levene's Test of Equality of Error Variances[a,b] (Inverted Data)

		Levene Statistic	*df1*	*df2*	*p*
Core content grade average	Based on Mean	3.242	5	131	.009
	Based on Median	1.961	5	131	.089
	Based on Median and with adjusted df	1.961	5	89.340	.092
	Based on trimmed mean	3.113	5	131	.011

Tests the null hypothesis that the error variance of the dependent variable is equal across groups.
a. Dependent variable: Core content grade average
b. Design: Intercept + parental_satisfaction + academic_level + parental_satisfaction * academic_level

Conclusions

Substantial violations of the assumptions of normal distribution and homogeneity of variances exist with the original data and both of the transformed data sets. These assumptions must be met for the Two-Way ANOVA results to be valid as violations can lead to inaccurate conclusions. Therefore, the Two-Way ANOVA was not completed.

CHAPTER FIVE: CONCLUSIONS

Overview

This quantitative causal-comparative study considered the impact of parental satisfaction with online learning and student academic level on the academic outcomes of students participating in fully virtual instruction. This chapter includes a discussion of major findings of this study as related to the literature. Also included is a discussion on the implications of this research to the impact of parental satisfaction with the school environment on student academic outcomes. The chapter concludes with a discussion of the limitations of the study and recommendations for future research.

Discussion

The purpose of this quantitative causal-comparative study was to determine the impact of parental satisfaction with online learning and student academic level on the academic outcomes of students participating in fully virtual instruction. The research reviewed identified parental perceptions of virtual instruction only from the crisis perspective of the 2020-2021 academic year (Gebauer et al., 2020; Henderson, 2021; Heo et al., 2021; Hinderliter et al., 2022; Kingsbury, 2021; Midcalf & Boatwright, 2020) and did not include studies conducted after the pandemic as online learning became a standard alternative to in-person instruction (Chowkase et al., 2022; Eynon & Malmberg, 2021; Kingsbury, 2021). This study examined the influence of parental satisfaction with the online learning environment on student academic achievement in the post-pandemic environment of the 2022-2023 school year.

The literature reviewed examined the impact of the hurried pivot to online learning on student progress compared to previous outcomes (Fontenelle-Tereshchuk, 2021) and the opinions and responses of parents to the virtual learning experience during the pandemic

(Chowkase et al., 2022; Henderson, 2021; Jumareng et al., 2022; Lau et al., 2021; Lui et al., 2020; Midcalf & Boatwright, 2020; Nyanamba et al., 2022; Yang et al., 2022). Additional studies examined parental perceptions of virtual learning during the crisis-based 2020-2021 school year and do not reflect parental perceptions of post-pandemic virtual learning experiences (Alsarayreh et al., 2022; Chowkase et al., 2022; Henderson, 2021; Hinderliter et al., 2022; Jumareng et al., 2022; Lau et al., 2021; Lui et al., 2020; Midcalf & Boatwright, 2020; Nyanamba et al., 2022; Yang et al., 2022) which have evolved into a more structured, rigorous, and responsive instructional option to in-person learning (Chowkase et al., 2022; Lim et al., 2021). However, the limited literature available on post-pandemic virtual instruction did not consider all of the variables, such as parental perception of and satisfaction with learning context, influencing online student motivation, self-efficacy, and the resulting academic outcomes in elementary and secondary students.

Bandura's social cognitive theory, which provided the theoretical framework for this study, emphasized the impact of specific social influences on an individual's behavior and considered the influence of the expectations of persons in positions of authority to that individual on their self-efficacy and correlating behavior and engagement in learning (Bandura, 1986; Mayer, 2019; Ouyang et al., 2021). Previous studies also suggested that parental satisfaction with their child's educational environment is a significant factor in student academic achievement, citing the influence of social persuasion from parents and other individuals in authority as an important factor in determining student self-efficacy and performance in several studies conducted in the United States and abroad (Joët et al., 2011; Lam & Chan, 2016). Additionally, the research suggested a positive correlation between student self-efficacy and academic achievement across all content areas in both in-person and blended learning environments

(Gebauer et al., 2020; Larsen & Jang, 2021; Mornar et al., 2022; Ortlieb & Schatz, 2020; Tarkar et al., 2022; Yuliyanto et al., 2021; Zumbrunn et al., 2020). Specifically, the literature identified parental involvement, learning context, and social context as additional factors influencing student self-efficacy and motivation during the pandemic academic year 2020-2021 (Al-Abdullatif & Aladsani, 2022; Alsarayreh et al., 2022; Lui et al., 2020; Nyanamba et al., 2022; Otani, 2020; Otero et al., 2020; See et al., 2020; Yang et al., 2022). Wigfield's (1994) expectancy-value theory of motivation identified a correlation between parental behaviors and student motivation. Additional research identified the influence of parental expectations on student behavior and learning engagement (Bandura, 1977; Mayer, 2019; Ouyang et al., 2021). This study analyzed the impact of parental satisfaction with virtual learning on student achievement in the four core content subjects of Math, Language Arts, Science, and Social Studies in a post-pandemic academic year when online learning platforms were no longer crisis learning supports but an accepted option for traditional instruction.

For this causal-comparative study, 139 parents of students who were enrolled in virtual instruction for the 2022-2023 school year were surveyed using the Panorama Family-School Relationships Survey to examine the impact of parental perceptions of virtual instruction (independent variable) and elementary and secondary student academic level (independent variable) on student combined core content grade averages (dependent variable) in the post-pandemic virtual learning environment. The process of a Two-Way ANOVA was started to analyze the data collected. Assumption testing on the data was completed. On the original data, the assumptions of normality and homogeneity of variances were violated. While one category (Level 1 Elementary) met the assumption of normality using transformed logarithmic data and two categories (Level 1 Elementary and Level 1 Secondary) met the assumption using

transformed inverse data, the violations of the assumption of normality and the assumption of homogeneity were too large due to the strong skew of the data to continue. As a result, the Two-Way ANOVA was not completed. However, analysis of the data collected suggested that there is a possible correlation between parental satisfaction and online student academic achievement in the post-pandemic virtual learning environment.

$H_0$1: There is no difference in *online student combined core content grade averages* between elementary and secondary students.

The research for this study identified a gap in the literature regarding academic outcomes in elementary and secondary online students after the COVID-19 crisis learning academic year of 2020-2021 (Fontenelle-Tereshchuk, 2021; Henderson, 2021; Jumareng et al., 2022; Lau et al., 2021). This study examined combined core content grade averages between elementary and secondary students in a post-pandemic academic year where online learning was an established option. The literature suggested that in the homeschool setting, parents are more likely to be able to assist their children in setting practical and doable goals because they are often actively involved in the learning process (Al-Abdullatif & Aladsani, 2022; Boonk et al., 2022; Bureau et al., 2021; Grijalva-Quiñonez et al., 2020; Lui et al., 2020; Lynam et al., 2022; Maltais et al., 2021; Otero et al., 2020; See et al., 2020; Shi & Tan, 2021; Sun et al., 2020). Additional research suggested that parental participation may impact student academic outcomes by fostering better communication (Boonk et al., 2022; Bubić et al., 2020; Jeynes, 2022; Ma et al., 2022). Consideration of parental participation in their student's learning was not given to this hypothesis. Visual analysis of the data suggested that student academic level is not a significant factor in determining academic outcomes as evidenced by the mean of grades in the four core content areas of Math, Language Arts, Science, and Social Studies.

$H_0$2: There is no difference in *online student combined core content grade averages* based on their parent's satisfaction with virtual instruction as measured by the Panorama Family-School Relationships Survey.

Research has identified a correlation between the negative parental opinion of learning context and student academic outcomes and that the strength of the relationship may vary depending on a range of factors, including curriculum, teaching style, and school environment (Fontenelle-Tereshchuk, 2021; Gebauer et al., 2020; Joët et al., 2011; Jumareng et al., 2022; Lam & Chan, 2016). Studies have identified parental support as a key predictor of their children's success in online learning during the epidemic (Al-Abdullatif & Aladsani, 2022; Alsarayreh et al., 2022; Hinderliter et al., 2022; Jumareng et al., 2022; Lau et al., 2021). This abrupt shift and the resulting academic outcomes prompted negative perceptions of virtual learning based solely on the experiences of crisis learning, which have impacted parental perceptions of the online learning environment as instruction has returned to traditional methods and contexts, including engaging with continuously evolving virtual platforms and educational technologies (Cole et al., 2021; Drvodelić & Domović, 2021; Fontenelle-Tereshchuk, 2021; Henderson, 2021; Liao et al., 2021; Mayer, 2019; Trust, 2018). The research reviewed suggested that experiences of the 2020-2021 school year significantly and negatively impacted the opinions and perceptions of the use of educational technologies and virtual instruction (Almusharraf & Khahro, 2020; Darling-Aduana et al., 2022; Drvodelić & Domović, 2021; Fontenelle-Tereshchuk, 2021; Hinderliter et al., 2022; Jumareng et al., 2022; Kingsbury, 2021; Lau et al., 2021; Nyanamba et al., 2022; Yang et al., 2022). A gap in the literature regarding the influence of parental satisfaction on student academic outcomes in post-pandemic virtual instruction was identified. This study examined the impact of parental perception of virtual learning on the core content grade averages of

elementary and secondary students. While the Two-Way ANOVA was not completed due to assumption violations, visual inspection of descriptive statistics showed that a considerably higher student core content grade average was associated with the highest parent satisfaction group (Level 3) than that of the Level 1 and Level 2 groups. This supports the theory that parental satisfaction with the learning environment continues to be a factor influencing student academic outcomes in post-pandemic education where virtual instruction has become an established option to traditional face-to-face learning (Galos & Aldridge, 2021; Guo et al., 2022; Han & Ellis, 2023; Lu et al., 2022; Ramos et al., 2021; Smith et al., 2021; Yu et al., 2022).

$H_0$3: There is no interaction between school academic level, elementary or secondary, and parent perception level as measured by the Panorama Family-School Relationships Survey on *online student combined core content grade averages*.

The literature examined for this study suggested that parental perception of the learning context in the face-to-face setting, including the availability of instructional resources, the curriculum, and the physical classroom environment has been identified as a factor directly influencing student academic achievement (Galos & Aldridge, 2021; Guo et al., 2022; Han & Ellis, 2023; Lu et al., 2022; Ramos et al., 2021; Smith et al., 2021; Yu et al., 2022). Additionally, the literature identified shifts in parental opinion and satisfaction with virtual instruction from positive during pre-pandemic academic years to a more negative perception through the 2020-2021 school year (Chowkase et al., 2022; Du et al., 2018; Gebauer et al., 2020; Jumareng et al., 2022; Lam & Chan, 2016). Other studies suggest a correlation between the academic outcomes of students participating in online learning and the self-efficacy and perception of learning context derived from the influence of negative parental opinions and dissatisfaction shared with students during this period but focus primarily on the COVID-19 crisis learning period and does

not consider the influence of parental satisfaction on student academic achievement in the post-pandemic regular online learning environment (Almusharraf & Khahro, 2020; Darling-Aduana et al., 2022; Drvodelić & Domović, 2021; Fontenelle-Tereshchuk, 2021; Hinderliter et al., 2022; Jumareng et al., 2022; Kingsbury, 2021; Lau et al., 2021; Nyanamba et al., 2022). This study examined whether parental perception of online learning is a factor that directly influences student outcomes in established post-pandemic elementary and secondary virtual learning environments. Although the Two-Way ANOVA was not completed for this study due to assumption violations, the descriptive statistics showed a higher mean grade average for students whose parent satisfaction ratings fell within the Level 3 (highly satisfied) category but did not differ between academic levels (elementary and secondary). This implies a possible correlation between parental satisfaction and student academic outcomes, but the data did not suggest a difference in academic levels.

Visual observation of the descriptive statistics suggests the average core-content grade average is considerably higher for Level 3 parental satisfaction, the most satisfied group. Further investigation with statistical testing was not possible due to the two assumption violations that occurred with the original data and both sets of transformed data. Each transformation iteration brought the data closer to passing the assumptions tests. However, neither attempt transformed the data so that both assumption test results were within an acceptable range.

Implications

The existing literature reviewed for this study identified the influence of parental satisfaction on student achievement in face-to-face learning and in virtual settings during the pandemic academic year of 2020-2021. While the Two-Way ANOVA was not completed due to assumption violations, the data collected for this study appears to support the literature,

suggesting that parental satisfaction based on perceptions of the learning environment continues to be an influencing factor on student academic outcomes in the post-pandemic educational environment.

The second hypothesis considered the impact of parental perception of online learning on student academic outcomes as evidenced by the core content grade average of parent-reported year-end grades for the 2022-2023 school year. The research suggested that a student is more likely to succeed in their academic endeavors if both the student and the parents have a positive perspective of the learning context. For example, parents who demonstrated favorable opinions of the learning context were more supportive and encouraging of their student's learning and were more inclined to offer them additional resources and support, resulting in higher academic achievement (Galos & Aldridge, 2021; Guo et al., 2022; Han & Ellis, 2023; Lu et al., 2022; Ramos et al., 2021; Smith et al., 2021; Yu et al., 2022). Visual analysis of the data for this study suggested that parental perception of virtual learning may directly influence student academic outcomes. This supports the literature, which suggests that parental satisfaction with the school environment does impact online students' academic outcomes. This suggests that administrators and school divisions should emphasize the significant role of parents in the online educational setting and address the need to identify appropriate support for parents and students engaged in virtual learning in the post-pandemic environment. In the virtual education context, the student's physical setting and environmental factors, such as parental attitudes, opinions, and expectations (Wigfield, 1994), have increased influence on student self-efficacy, motivation, and academic outcomes (Bandura, 1977; Mayer, 2019; Wang & Lin, 2021; Zhen et al., 2020; Zysberg & Schwabsky, 2021) due to lack of other adults in positions of authority in the learning environment. Previous studies identified the already greater role of the parent over the teacher

regardless of the physical environment in which learning is occurring (Almusharraf & Khahro, 2020; Bubić et al., 2020; Dunbar et al., 2018; Filippello et al., 2020; Gebauer et al., 2020; Grijalva-Quiñonez et al., 2020; Lam & Chan, 2016; Lei et al., 2022; Loh, 2019; Lynam et al., 2022; Maltais et al., 2021; Milovanska-Farrington, 2022; Otani, 2020; Otero et al., 2020; Pinquart & Ebeling, 2020; See et al., 2020; Shi & Tan, 2021; Sun et al., 2020).

While the overall satisfaction of parents based on their experience with online learning was considered for this study, analysis of each of the nine scales of the survey responses should be examined to identify specific areas where parental perception is lower. This will provide opportunities for growth within the school and suggest focus areas to strengthen the school-family relationship. Further research will also help to identify grade-level-specific needs to support both the parent and online student to facilitate positive experiences for both in the virtual setting to increase parental satisfaction and academic outcomes.

Limitations

The causal-comparative research design is used to identify cause-and-effect relationships between categorical groups within which the independent variable is present and to determine if a difference exists between these two groups on the dependent variable (Gall et al., 2007). This causal-comparative study determined the causal effects of parental perceptions of virtual learning (independent variable) and academic level (independent variable) on student academic outcomes (dependent variable). While this design was most appropriate for this study because it allowed the researcher to determine the cause-and-effect relationships (Gall et al., 2007) between favorable and unfavorable parental perceptions of virtual instruction and student academic level on online student achievement, the non-experimental causal-comparative design is not without limitations. Unlike experimental designs where researchers can manipulate variables and control

for extraneous factors, causal-comparative studies are ex post facto, making it challenging to infer causality (Gall et al., 2007). Furthermore, selection bias and the impossibility of controlling for every potential variable may weaken the internal validity of the results. In some studies, it can also be difficult to generalize study results outside of the particular population and context being considered, potentially impacting the research's external validity (Gall et al., 2007). Despite these limitations, causal-comparative research is still effective in determining possible correlations between variables and was the most appropriate design for this study.

The second limitation to this study was the number of questions included in the survey. The Panorama Family-School Relationships Survey was used in accordance with the directions of the publisher which allowed for the use of any or all parts of the instrument (Panorama Education, n.d.). At the request of the school district, however, the number of questions was reduced from 66 to 29 to target prompts specifically related to parent perception and satisfaction and reduce the possibility of limited responses presenting a possible threat to the internal validity of the survey. Individual scales and questions within the instrument were selected collectively by the researcher and the school district representative to provide a broad and unbiased survey of parental satisfaction and perception within the acceptability of the district.

The third limitation was the representation of elementary students included in this study. This study was conducted in one school district with an online population of grades 4 through 12. As a result, this analysis does not include responses of parents of primary students that a broader sample of K through 12 parents would produce.

The fourth limitation was the lack of low parental satisfaction scores identified by the survey. All parental satisfaction scores reflected medium to high satisfaction with virtual

learning with mean scores between 3.0 and 5.0. Therefore, this study was not able to consider the effect of low parental satisfaction scores on student core content grade averages.

The fifth and final limitation to this study was the violation of the assumption of homogeneity of variance and the assumption of normality. These violations can potentially lead to questions about the reliability and validity which prevented completion of a Two-Way ANOVA. There is not a consensus regarding an analogous non-parametric test for a Two-Way ANOVA (Mangiafico, 2016). While the Two-Way ANOVA is "fairly robust to violations of the normality assumption and the homogeneity of variance assumption unless the numbers of cases in the cells are very small and/or unequal" (Warner, 2013, p. 486), the violations in this study were too sizeable to continue.

Recommendations for Future Research

Although the Two-Way ANOVA was not able to be completed due to the assumption violations, the data collected appear to support previous theories regarding the impact of parental perceptions of the learning environment on student academic outcomes in the post-pandemic environment, particularly with students of parents in this highest satisfaction group. Virtual instruction is continuously evolving, creating a varying transformational landscape of opportunities, norms, and challenges for the K-12 learner. As a result, there is a necessity for continued research to meet the future trajectory of online learning as it continues to evolve to ensure that the needs of the individual learner continue to be met. The following are recommendations for future research to support both students and parents in the evolving virtual learning environment.

1. Additional studies should be conducted in various demographic areas to obtain a broader perspective of the influence of parental context on satisfaction with online learning.
2. Additional studies should be conducted on larger populations to include K-12 to examine the influence of parental satisfaction on academic outcomes at the lower elementary level.
3. Additional studies should be conducted that include a larger number of prompts from the Panorama Family-School Relationships Survey (Panorama Education, n.d.) to present a broader interpretation of the school environment.
4. Subsequent studies on previously surveyed populations may identify ongoing issues within the learning environment to identify areas of growth and factors which are impacting parental satisfaction and student academic outcomes.
5. Additional studies should focus on targeted populations of parents of students realizing low core content grade averages to determine whether the influence of lower achievement influences or is influenced by parental satisfaction with the virtual learning environment.

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Appendix A

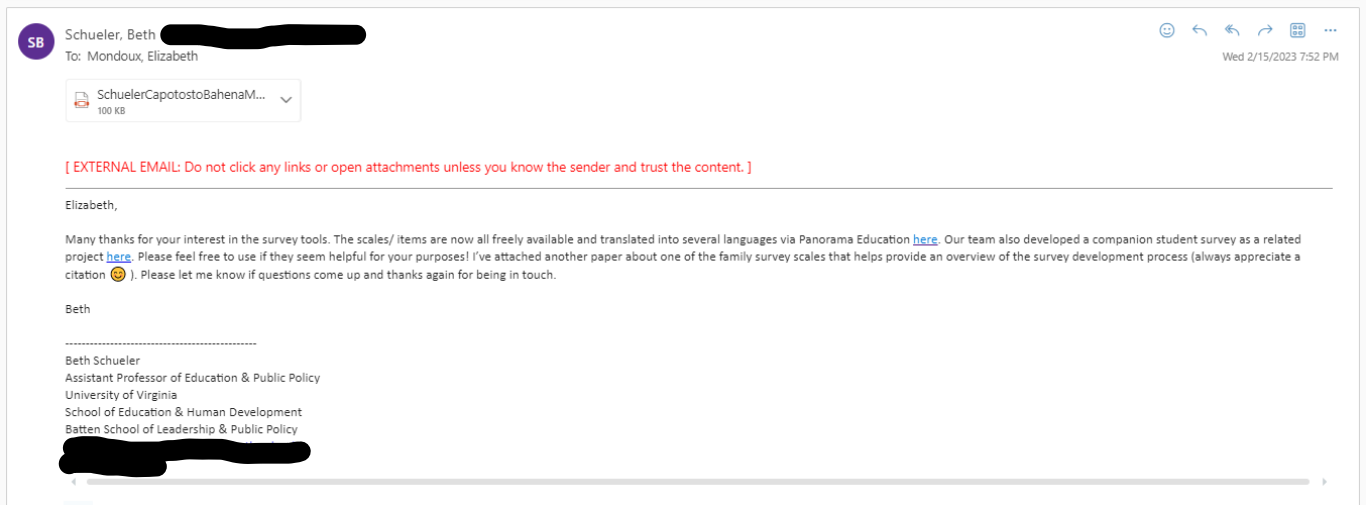
Panorama Family-School Relationships Survey Sample

Removed to comply with copyright.

Panorama Family- School Relationships Survey (Panorama Education, n.d.)**.**

Appendix B

Panorama Family-School Relationships Survey Permission



Schueler, Beth [redacted]
To: Mondoux, Elizabeth

Wed 2/15/2023 7:52 PM

SchuelerCapotostoBahenaM...
100 KB

[EXTERNAL EMAIL: Do not click any links or open attachments unless you know the sender and trust the content.]

Elizabeth,

Many thanks for your interest in the survey tools. The scales/ items are now all freely available and translated into several languages via Panorama Education here. Our team also developed a companion student survey as a related project here. Please feel free to use if they seem helpful for your purposes! I've attached another paper about one of the family survey scales that helps provide an overview of the survey development process (always appreciate a citation). Please let me know if questions come up and thanks again for being in touch.

Beth

Beth Schueler
Assistant Professor of Education & Public Policy
University of Virginia
School of Education & Human Development
Batten School of Leadership & Public Policy
[redacted]

At Panorama, we believe that all educators deserve access to the best tools available. We invite educators to use the Family-School Relationships Survey free of charge. We only ask that you identify the survey as the "Family-School Relationships Survey" created by Panorama Education so that others may find this resource as well. If you have any feedback, contact us at research@panoramaed.com.

Appendix C

IRB Permission

Date: 8-4-2023

IRB #: IRB-FY23-24-141
Title: A Causal-Comparative Study of the Difference in Student Academic Outcomes Among Elementary and Secondary Online Students Based on Parental Perceptions of Virtual Instruction
Creation Date: 7-28-2023
End Date:
Status: Approved
Principal Investigator: Elizabeth Mondoux
Review Board: Research Ethics Office
Sponsor:

Study History

Submission Type	Review Type	Decision
Initial	Exempt	Exempt

From: IRB, IRB <IRB@liberty.edu>
Sent: Friday, August 4, 2023 1:54:06 PM
To: Mondoux, Elizabeth [redacted]
Cc: IRB, IRB <IRB@liberty.edu>; Keahey, Heather L (School of Education) [redacted]
Subject: RE: IRB-FY23-24-141 Review & Clarification

Good afternoon Elizabeth,

Thank you for providing your link. After reviewing the information provided in the survey, we see the area where the grade is mentioned, and this is perfectly acceptable for an anonymous survey. We apologize for the confusion and inconvenience, and we will allow this procedure to take place within your application.

On that note, the IRB has completed its review of your research application, and you will receive your approval notification shortly. Some minor edits were identified on the attached documents, and we wanted to make you aware of the edits, but you do not need to return the documents to the IRB.

Feel free to contact the IRB if you have any questions.

God bless!
--- --- ---
Jeremiah Hopkins
Assistant Research Coordinator
Office of Research Ethics
[redacted]

Appendix D

District Permission to Survey Parents of Online Students

From: [redacted]
Sent: Thursday, October 5, 2023 11:43:59 AM
To: Elizabeth Mondoux [redacted]
Subject: RE: Survey- Following up

You are approved. Contact Stacy for implementation.

[redacted] Ed.S.
Director of Accreditation and Accountability

[redacted]

Appendix E

Permission to Disseminate Survey

From: [redacted]
Sent: Thursday, October 5, 2023 11:43:59 AM
To: Elizabeth Mondoux [redacted]
Subject: RE: Survey- Following up

You are approved. Contact Stacy for implementation.

[redacted] Ed.S.
Director of Accreditation and Accountability

[redacted]

Appendix F

Participant Electronic Informed Consent Form

Participant Information Sheet

Title of the Project:

A CAUSAL-COMPARATIVE STUDY OF THE DIFFERENCE IN STUDENT ACADEMIC OUTCOMES AMONG ELEMENTARY AND SECONDARY ONLINE STUDENTS BASED ON PARENTAL PERCEPTIONS OF VIRTUAL INSTRUCTION

Principal Investigator: Elizabeth G. Mondoux, Doctoral Candidate

School of Education

Liberty University

Invitation to be Part of a Research Study

You are invited to participate in a research study. To participate, you must be 18 years of age or older and the parent of a student who participated in online learning during the 2022-2023 school year. Taking part in this research project is voluntary.

Please take time to read this entire form and ask questions before deciding whether to take part in this research.

What is the study about and why is it being done?

The purpose of this study is to determine whether there is a difference in student academic outcomes among elementary and secondary students who participate in online learning based on the parental level of satisfaction with virtual learning.

What will happen if you take part in this study?

If you agree to be in this study, I will ask you to do the following:

1. Complete the Panorama Family-School Relationships Survey. This survey will take approximately 15 minutes to complete. During this survey, we will ask you to disclose your student's year-end final grades for each of the four core content courses: Math, Language Arts, Science, and Social Studies.

How could you or others benefit from this study?

Participants should not expect to receive a direct benefit from taking part in this study.

Benefits to society include identifying specific factors contributing to student academic achievement that must be considered as administrators work to determine the continuing viability of established virtual learning platforms in their district including assessment and stakeholder data that may be used to design appropriate curricula and instructional opportunities for online students equitable to those experienced by students in face-to-face settings.

What risks might you experience from being in this study?

The expected risks from participating in this study are minimal, which means they are equal to the risks you would encounter in everyday life.

I am a mandatory reporter. During this study, if I receive information about child abuse, child neglect, elder abuse, or intent to harm self or others, I will be required to report it to the appropriate authorities.

How will personal information be protected?

The records of this study will be kept private. Research records will be stored securely, and only the researcher will have access to the records.

- Participant responses will be anonymous.

- Data will be stored on a password-locked computer. After five years, all electronic records will be deleted.

How will you be compensated for being part of the study?

Participants will not be compensated for participating in this study.

Is the researcher in a position of authority over participants, or does the researcher have a financial conflict of interest?

The researcher serves as a teacher in Hanover County Public Schools. To limit potential or perceived conflicts, data collection will be anonymous, so the researcher will not know who participated. This disclosure is made so that you can decide if this relationship will affect your willingness to participate in this study. No action will be taken against an individual based on his or her decision to participate or not participate in this study.

Is study participation voluntary?

Participation in this study is voluntary. Your decision whether to participate will not affect your current or future relations with Liberty University. If you decide to participate, you are free to not answer any question or withdraw at any time prior to submitting the survey without affecting those relationships.

What should you do if you decide to withdraw from the study?

If you choose to withdraw from the study, please exit the survey and close your internet browser. Your responses will not be recorded or included in the study.

Whom do you contact if you have questions or concerns about the study?

The researcher conducting this study is Elizabeth Mondoux. You may ask any questions you have now. If you have questions later, you are encouraged to contact her at [redacted]
You may also contact the researcher's faculty sponsor, Dr. Heather Keahey, at

[redacted]

Whom do you contact if you have questions about your rights as a research participant?

If you have any questions or concerns regarding this study and would like to talk to someone other than the researcher, you are encouraged to contact the IRB. Our physical address is Institutional Review Board, 1971 University Blvd., Green Hall Ste. 2845, Lynchburg, VA, 24515; our phone number is 434-592-5530, and our email address is irb@liberty.edu.

Disclaimer: The Institutional Review Board (IRB) is tasked with ensuring that human subjects research will be conducted in an ethical manner as defined and required by federal regulations. The topics covered and viewpoints expressed or alluded to by student and faculty researchers are those of the researchers and do not necessarily reflect the official policies or positions of Liberty University.

Information Sheet

Before agreeing to be part of the research, please be sure that you understand what the study is about. You can print a copy of the document for your records. If you have any questions about the study later, you can contact the researcher using the information provided above.

If you choose to withdraw from the study, please exit the survey and close your internet browser. Your responses will not be recorded or included in the study.