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From Crisis to Classroom: Evaluating Academic Success in Vulnerable Populations During the COVID-19 Emergency Education Era

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FROM CRISIS TO CLASSROOM: EVALUATING ACADEMIC SUCCESS IN VULNERABLE POPULATIONS DURING THE COVID-19 EMERGENCY EDUCATION ERA

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ABSTRACT

This study investigated school closures' impact on students from vulnerable populations in elementary classrooms. The research places an emphasis on the importance of an equitable and effective educational system in every community. It highlights the role of formal education in providing opportunities for social advancement and promoting the development of individuals and nations. The impact of the COVID-19 Emergency on access to quality education and the challenges and inequities faced by vulnerable populations are emphasized. This research also discusses the Sustainable Development Goals (SDGs) established by the United Nations in 2015 to ensure inclusive and equitable education for all children worldwide.

Data from a large suburban school district is presented to analyze how students perform following school closures and their attempts to prevent achievement gaps. Specifically, the researcher examines how students from minority and low socioeconomic subgroups have been impacted by the COVID-19 Emergency compared to their peers.

The analysis demonstrates a significant correlation between race, socioeconomic status and student success on the Florida Standards Assessment. Due to school shutdowns, one can conclude that students from vulnerable populations struggled to access curriculum at the same rate as their non-vulnerable peers. Recommendations are made for mitigating learning loss and for preparing schools to successfully maintain the quality of education in future emergencies.

Dedicated to my wife, Casey, who taught me patience and persistence; and then made me use it.

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CHAPTER ONE: INTRODUCTION

Background

Developing an equitable and effective educational system is challenging but vital in every community. Formal education plays an essential role in distributing opportunities for individuals seeking social advancement within their society (Beltran et al., 2021; Fischman et al., 2006; Korzhov & Pasco, 2021; Long, 2006; Lunze, K., & Paasche-Orlow, M. K., 2014; Luyten et al., 2005, Verhauest et al., 2018). When educational systems work as intended, they are central to the development of a nation. Formal education provides an opportunity to improve the quality of life for future generations by teaching students to think critically, gain access to vocational skills, and develop problem-solving skills. Gaining access to education helps to level the playing field for people of different races, genders, abilities, and religions by providing equitable opportunities (Drake, 2010; Erola, 2009; Huber, 2004; Iannelli, 2013; Krabel, 1972; Thompson & Simmons, 2013; Zhao et al., 2012).

Access to quality education aims to provide learners with the knowledge, skills, and values needed to build a better life for themselves and their families (Boeren, 2019). When access to quality education increases, the positive ripple effect felt by communities and countries is significant (Boeren, 2019). For example, research indicates that college graduates vote and volunteer within their community more regularly compared to non-graduates. (Moretti, 2004). Children with educated parents are more likely to attend higher educational institutions and have the financial means necessary to afford advanced education (Green et al., 2017). Moreover, people who attend college typically pay higher taxes and are less reliant on government support (Baum & Flores, 2011), and money invested in additional years of schooling continues to show

significant returns. For example, one dollar invested in additional schooling continues to generate earnings and health benefits equal to ten dollars in low-income countries and four dollars in lower-middle-income countries (Schäferhoff et al., 2016). Just one additional year in school can increase a woman's earnings from ten percent to twenty percent (Psacharopoulos & Patrinos, 2004). Thus, education is essential for maximizing individual potential, increasing economic growth, promoting global citizenship, and fostering social development.

While education aims to improve the quality of life for populations worldwide, achievement gaps and lack of access to quality education are prevalent within vulnerable populations. Inequities caused by race, gender, social class, disability, and location hinder millions of vulnerable populations worldwide (Bourguignon et al., 2005; UNDP, 2005). For example, in low and lower-middle-income countries such as Somalia, Afghanistan, Liberia, Haiti, and Nigeria, around 40 percent of children who have a disability are not enrolled in primary school, while 55 percent are not attending lower-secondary school (Mizunoya et al., 2016). There are significant gaps in primary schooling completion rates between upper-income and lower-income students. Low-income countries, on average, allocate 46 percent of their educational budgets to the top ten percent of their most educated students (International Commission on Financing Global Education Opportunity, 2016). As of 2019, the United Nations indicated that only one-third of the 193 member countries recorded expenditures of between 15 and 20 percent of their total budget on education (ECOSOC, 2019). Despite considerable progress toward achieving increased school completion rates worldwide, there are still daunting challenges regarding access to quality education for all children.

To ensure more equitable opportunities worldwide, organizations such as the United Nations have developed a blueprint for peace and prosperity known as the Sustainable Development Goals (SDGs) (Fonseca & Carvalho, 2019). Established in 2015, the SDGs aim to end poverty by improving health and education, reducing inequality, and sparking economic growth for all people worldwide through 17 ambitious goals by the year 2030. One of the 16 SDGs, put forth by the United Nations, aims to "ensure inclusive and equitable quality education and promote lifelong learning opportunities for all" (United Nations, 2018). The focus is on inclusive and equitable education for all children worldwide.

It is important to understand the origin of the SDGs and how they have transformed their original conceptions to meet global needs. In September 2005, 189 countries came together in a global summit to sign the Millennium Development Goals (MDGs) at the UN General Assembly (Table 1). These goals, created at the world's largest gathering of leaders in history, aimed to be the world's time-bound and quantified targets for addressing extreme poverty in its many dimensions while promoting gender equality, education, and environmental stability (Ahimbisibwe & Ram, 2019). All established goals were accompanied with a deadline of 2015 and were regarded as the most broadly supported, comprehensive and specific poverty reduction targets the world had ever established (UN Millennium Project, 2005).

Table 1 Millenium Development Goals

MDG 2015: Time for Global Action for People and Planet			
Goal 1	Eradicate extreme poverty and hunger	Goal 5	Improve maternal health
Goal 2	Achieve universal primary education	Goal 6	Combat HIV/AIDS, Malaria, and other diseases
Goal 3	Promote gender equality and empower women	Goal 7	Ensure environmental sustainability
Goal 4	Reduce child mortality	Goal 8	Global partnership for development

MDG2, achieving universal primary education, sought to reduce the urban-rural divide by making education more accessible to children living in less densely populated areas. Believed to be the most critical of the eight goals, education is considered essential to human development (Biamba, C., 2014). At the time, UNESCO's 2009 Global Monitoring Report suggested that 80 percent of nearly 72 million students not in school lived outside of urban areas (Kremer & Holla, 2009). Lacking access to education, particularly in rural areas, is associated with decreased literacy rates, food insecurity, and increased probability of generational poverty (Booth, 2000; Braveman & Gruskin, 2003; Meyer, 1977; Sugarman, 2021; Wagner, 2017), making MDG2 paramount to the success of other MDGs.

MDGs accomplished growth in access to education and increased achievement results, according to the United Nations. Since 2000, there has been significant progress in achieving universal primary education, with many developing regions reaching 91 percent in 2015 (United Nations, 2018). Sub-Saharan Africa recorded the highest gains in students attending school out of all regions with nearly a 30 percent increase in the population of students attending primary school (United Nations, 2018). Literacy rates saw a dramatic increase, and the number of children not in school has dropped by almost half (United Nations, 2018). It is important to note that while the United Nations identifies the MDGs as a successful initiative, many indicators that demonstrate success for countries like Rwanda revolve around increases in health and safety goals (Abbott et al., 2017).

After determining varying degrees of success surrounding the MDGs, the UN determined that sustainable development should be the focus moving forward (Sachs, 2012). The SDGs (Table 2), build on decades of work throughout the global community digging deeper beyond the

original eight MDGs in an attempt to build a more sustainable future for all. These Sustainable Development Goals (SDGs) are described by the United Nations as,

> "…a shared blueprint for peace and prosperity for people and the planet, now and into the future. At its heart are the 17 Sustainable Development Goals (SDGs), which are an urgent call for action by all countries - developed and developing - in a global partnership. They recognize that ending poverty and other deprivations must go hand-in-hand with strategies that improve health and education, reduce inequality, and spur economic growth – all while tackling climate change and working to preserve our oceans and forests" (UNESCO, 2016).

Table 2 Sustainable Development Goals

United Nations Department of Economic and Social Affairs, Sustainable Development Goals					
Goal 1	No poverty	Goal 7	Affordable and clean energy	Goal 13	Climate action
Goal 2	Zero hunger	Goal 8	Decent work and economic growth	Goal 14	Life below water
Goal 3	Good health and well-being	Goal 9	Industry, innovation, and infrastructure	Goal 15	Life on land
Goal 4	Quality education	Goal 10	Reduced inequalities	Goal 16	Peace, justice, and strong institutions
Goal 5	Gender equality	Goal 11	Sustainable cities and communities	Goal 17	Partnerships for the goals
Goal 6	Clean water and sanitation	Goal 12	Responsible consumption and production		

SDG4, "Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all," is the SDG most closely tied to the universal primary education MDG (United Nations, n.d.). The goals recognize education as a "fundamental human right and an

enabling right (UNESCO, 2016)," pushing the importance of continued education for global sustainability (Webb et al., 2017).

Despite improvements in literacy rates and school attendance, emergencies, including the evolving COVID-19 pandemic, have put an already ambitious target of achieving quality education for all by 2030 even further out of reach.

Emergency education, with the goal of maintaining a safe and consistent environment for quality education, has become essential worldwide due to the increasing displacement of students caused by conflict, and natural disasters due to climate change, such as hurricanes and droughts. However, conflict between governments continues to displace students from formal education in traditional schools. More countries are struggling with war and conflict today than ever in the past thirty years (World Bank, 2018). Many of these emergencies can last throughout an entire childhood for primary-aged students, disrupting school for a generation of children. By the end of 2021, UNICEF estimated that 36.5 million children were displaced because of conflict and violence (UNICEF, 2022). For example, the Ukrainian Ministry of Education and Science reported in September 2022 that of the 3.9 million students starting school in the fall, only 800,000 were learning in a traditional format due to the ongoing conflict with Russia (Volodina, 2022). Emergency events can cause children to lose family members, their homes, and critical infrastructures such as transportation, power grids, and even school buildings. Residents lose access to clean drinking water, hospitals, and even food throughout communities (Mayai, 2020), while safety and daily routines are diminished, limiting access to quality education (Chen et al., 2019).

While these natural and human-initiated disasters create havoc within specific countries or regions of the world, the COVID-19 pandemic demonstrated how fragile our education system was when classrooms were shuttered around the world. Clearly, pandemics have had a profound impact on humans throughout history. The Black Death, otherwise known as the bubonic plague in the 14th century, prevented public gatherings and killed an estimated 75 to 200 million people in Europe and Asia (Piret & Bolvin, 2021; Yang, 2018; Zietz & Dunkelberg, 2004). Between 1918 and 1919, the Spanish Flu infected an estimated 500 million people worldwide and killed between 50 and 100 million people. Public gatherings were banned, schools and businesses were closed, and people were urged to wear masks. Many cities imposed strict quarantine measures, and people were advised to stay home (Johnson & Mueller, 2002; Mills et al., 2004; Reid et al., 2004). Beginning in the 1980s, the HIV/AIDS pandemic infected an estimated 75 million people worldwide. The pandemic had a significant impact on daily life, particularly for those living with the disease. While HIV/AIDS did not impose the same quarantine mandates as other pandemics, it still led to widespread fear and stigma, and people with the disease often face discrimination and social isolation (Folkers & Fauci, 2010; Merson & Littleton, 2007; Sharp, & Hahn, 2011). However, none of these pandemics, nor other instances of emergency education, have created the dramatic effects that the COVID-19 pandemic has caused, especially for students.

Statement of the Problem

Our schools have endured a life-altering pandemic throughout 2019 to 2021 – the COVID-19 pandemic. This crisis has also exasperated the inequities caused by economic status and racial divides within the United States. The problem being addressed in this study is that students from vulnerable populations struggle to gain equitable access to quality education through distance learning caused by the COVID-19 global pandemic. This study will define vulnerable populations as economically disadvantaged or Black students (American Journal of Managed Care, 2016). While multiple minority groups could fall into the vulnerable population category, for the sample of students being analyzed within the organization of this study, Black students have continuously struggled academically. Also, distance learning, which can be referred to as "remote learning," describes students and teachers interacting through online communication in the process of teaching and learning outside of the brick-and-mortar classroom (Dede, 1996; Machtmes & Asher, 2000; Khan et al., 2022). Moreover, COVID-19 is responsible for the largest disruption in student education in recorded history, impacting around 1.6 billion children in over 190 countries (Hussein et al., 2020; UNICEF, 2020), making it the largest emergency educational response in history. With 72 percent of the world's student population transitioning from attending school in classrooms to learning to work on multiple online platforms from home, distance learning invoked even more significant challenges for schools to provide access to quality education for all children (Hussein et al., 2020; UNESCO, 2020). The closure of schools and the implementation of distance learning have created significant social and academic impacts on students worldwide, particularly those from vulnerable populations (Aristovnik et al., 2020).

The effect of school closures on students in vulnerable populations is even more severe than the inequities these students may face in a typical school setting (Dietrichson et al., 2017; Leach & Williams, 2007; Hoff, 2013; UNESCO, 2020). Schools that transitioned to distance learning were forced to create in just days materials that normally would have taken years to produce (Khan et al., 2022). Teachers also faced multiple online learning challenges, including poor communication skills and low efficacy with technology. Teachers struggling with technology often adopted a minimalist approach to coursework, giving students a surface-level amount of information. The combination of the unfamiliarity of online classrooms and the use of technological tools hindered instructors from creating online learning environments conducive to student success (Basar et al., 2021; Khan et al., 2022; Wake & Bunn, 2015

As the number of students accessing their curriculum on a computer increases, educational platforms must be designed to include accessibility and inclusion for all students (Pittman & Heiselt, 2014). Online instruction also creates additional challenges as current teachers may not possess the technical skills and training required for effective instruction. Moreover, even basic access to distance learning is challenging for students who may not have laptops, let alone the necessary internet at the appropriate bandwidth to meet minimum system requirements (UNESCO Bangkok, 2020). Online instruction proved challenging outside of a typical virtual setting due to the sheer volume of students being moved to online platforms quickly.

An unprecedented number of students were learning remotely at the height of the pandemic (Morgan, 2022; Pokhrel & Chhetri, 2021; Prime et. al, 2020; Van Lancker & Parolin, 2020). COVID-19 essentially forced a global shutdown of education and the transition to

distance learning, which has proven to adversely impact the quality of education provided to all students. Children were learning, or attempting to learn, from home which raises a multitude of consequences, such as interrupted learning, gaps in childcare, social isolation, and challenges in measuring academic growth (UNESCO, 2020). Many families from vulnerable populations struggled from the onset of COVID-19. Families who receive free or reduced-priced lunches due to their annual income were especially hit hard by the increased concern about the lack of meals (Niles et al., 2020; Otten et al., 2022, Van Lancker & Parolin, 2020), the ability to connect to their classroom from a device, the need for internet bandwidth supporting multiple students (Biamba, 2014; Katz et al., 2021; van Deursen, 2020) , and parents' ability and/or availability to assist their children with schoolwork (Goldenberg, 1987; Gubbins & Otero, 2020; Milne & Plourde, 2006; Smetackova & Stech, 2021).

School districts need to ensure that all stakeholders, such as parents, teachers, administrators, and community members, have a collective responsibility to help reduce factors that negatively affect the potential educational gains of all students, particularly those from vulnerable populations. However, even by addressing multiple significant concerns, the crisis caused by the pandemic can still widen inequalities within educational systems (UNESCO Bangkok, 2020). Given these challenges, this study is essential as it explores possibilities of providing quality and equitable education through distance learning to socio-economically disadvantaged students during crises such as those triggered by the COVID-19 pandemic.

Organizational Context

This study determined student achievement's effects on vulnerable populations during the COVID-19 global pandemic. The research was conducted in a large, urban school district in

central Florida consisting of 37 elementary schools, 12 middle schools, nine high schools, and multiple specialty center schools.

When examining the population by race or ethnicity, the United States is made up of individuals who identify as White (75.8%), Black or African American (13.6%), Hispanic or Latino (18.9%), or Asian (6.1%) (U.S. Census Bureau, 2022). Cimarron County's (a pseudonym for a Florida school district) population comprised of individuals who identified as White (77.8%), Black or African American (13.4%), Hispanic or Latino (23.3%), and Asian (5.2%) (U.S. Census Bureau, 2022). Cimarron County Public School (CCPS), also a pseudonym, is in the top 15 of 67 districts for enrollment throughout Florida and 60th nationally, with more than 67,000 students enrolled throughout the district. The district is diverse, with students identified as White (43%), Black or African American (14.6%), Hispanic or Latino (31.3%), Asian (5.8%), and Other (5.3%) (CCPS Database, n.d.). The staff within the district consists of more than 10,000 employees. Among those employees, 46 percent of instructional staff members have (advanced degrees, including a masters, specialist, or doctoral degree, and there is an average classroom experience of 12.49 years for teachers. The school district reports that 98 percent of the teachers are certified and 81% have three or more years of experience.

Table 3 Demographic data comparison between the United States, Cimmaron County, and Cimmaron County Public Schools.

Population	White	Hispanic or Latino	Black or African American	Asian	American Indian or Alaskan Native	Native Hawaiian or Other Pacific Islander	Multicultural
United States	60.1%	18.5%	12.2%	5.6%	1.3%	0.3%	2.9%
Cimmaron County	57.1%	22.9%	11.1%	4.97%	0.5%	0.1%	3.0%
CCPS	44.6%	30.1%	14.5%	5.8%	<1%	<1%	2.9%

Annually, the school district receives allocated federal dollars to provide supplemental resources to schools with high percentages of students who qualify for free or reduced lunch. Across the district, 47.2 percent of students are eligible for free or reduced lunch. Currently, there are 12 elementary schools, four middle schools, and three special centers receiving supplemental resources through Title 1 (additional funding to support economically disadvantaged schools) funding (CCPS, n.d.).

While the district appears diverse and community members would perceive school segregation as obsolete, it is important to note the work this district has done to increase equity, eliminating sanctions from the federal government. Official segregation in schools was banned with the 1954 ruling of *Brown vs. Board of Education.* However, Florida's schools were not desegregated until 1970 (Baker, 2001). While desegregation took effect, the impacts from segregated schools continued to impact students and lead to educational inequalities. (Orfield & Lee, 2006). Even after desegregation, Cimmaron Public School District operated as a segregated "dual system," not meeting the Fourteenth Amendment's Equal Protection Clause brought on by *Brown v. Board of Education* until 2006, when the district achieved Unitary Status. According to the U.S. Commission on Civil Rights (2007), a district achieves Unitary Status once desegregation structures are removed. School districts were tasked with creating a "unitary, nonracial system" based on the *Green* factors, outlined by the 1968 Supreme Court, in *Green v. County School Board of New Kent County.* Green factors identified six areas to be addressed by school districts, ensuring nonracial and unitary access, including students, faculty, staff, facilities,

transportation, and extracurricular activities (Holley-Walker, 2009). *Brown* and *Green* were landmark decisions to help provide equity for vulnerable populations.

Despite federal efforts to promote equity, including Title 1 funding for economically disadvantaged schools, districts continue to grapple with educational inequalities rooted in a history of segregation. CCPS extended their efforts to diversify schools by incorporating magnet programs in impoverished schools to help entice students from more affluent neighborhoods to struggling schools with specialized programs in the arts, science, engineering, and leadership skills. However, COVID-19 school closures continued to exacerbate inequities, especially when it comes to providing students with basic needs during the implementation of emergency education.

Theoretical Lens

Emergency education aims to provide immediate and short-term educational support to children affected by emergencies, such as natural disasters, conflict, and pandemics (Kagawa, 2005). Groups who provide emergency education try to ensure that children have access to education during a crisis despite the challenges around them (Nicolai & Triplehorn, 2003). Ultimately, emergency education exists to minimize the negative impacts of emergencies on children's education and to promote their educational and psychosocial well-being. This includes providing safe and supportive learning environments and delivering relevant and high-quality standards-based instruction, all while building the resiliency of affected communities (Kagawa, 2005). However, the circumstances surrounding an emergency often reduce the ability to gather in a traditional classroom and often can eliminate jobs, healthcare, and access to food, water, and shelter. The researcher explored how one school district responded to the COVID-19 pandemic

and how the pandemic impacted student achievement results through the lens of Maslow's Hierarchy of Needs (Maslow, 1943).

Maslow's Hierarchy of Needs

Maslow's Hierarchy of Needs is a motivational theory that identifies deficiency needs that must be met prior to an individual's growth and development (Maslow, 1943). From a Maslowian point of view, when there are concerns about a lack of physiological or safety needs, there is less ability to climb Maslow's hierarchy toward self-actualization. The needs of both students and teachers increased significantly when in-person learning was transitioned to distance learning at the start of the pandemic.

Maslow's hierarchy theory can be applied to the justification of students struggling when school closures occured. Lockdowns forced students to work remotely from home, through distance learning, which did not provide many basic needs that would be provided in traditional face-to-face situations. Maslow's theory is one of the most widely recognized theories regarding human motivation. Maslow's needs hierarchy from lowest to highest include:

1. Physiological needs

   These include air, water, food, shelter, sleep, clothing, and the ability to reproduce.

2. Safety needs

   Safety needs include personal security, employment resources, health, and property.

3. Love and belonging

   These include friendship, intimacy, family, and a sense of connection.

4. Esteem

Esteem includes respect, self-esteem, status, recognition, strength, freedom.

5. Self-actualization

   Self-actualization is the desire to become the most that one can be.

Maslow believed that an individual's motivation and ability to succeed are based on having needs met from the lowest to the highest tier (Adiele & Abraham, 2013). Once satisfying the needs of hunger, safety, connection, and self-esteem, an individual can work toward achieving self-actualization or growth needs. Maslow (1962) considered an individual's complete physical, emotional, social, and intellectual characteristics and how learning was influenced. The impact of Maslow's hierarchy in the classroom is clear; once students have their deficit tiers met within the first four levels of the hierarchy, they can begin engaging in growth and motivation (Poston, 2009). Maslow advocates those individuals are motivated to achieve because they are fulfilled and doing all they are capable of (Shi & Lin, 2021).

Maslow's Hierarchy of Needs significantly impacts student achievement in the classroom. The lower four needs (physiological, safety, belonging/love, and esteem) are known as deficiency needs, which arise due to deprivation. One must satisfy these needs to avoid feeling unpleasant or, in this case, to have potential academic consequences. Growth needs are the pinnacle of human motivation and are only achievable when all lower-level needs (deficiency needs) have been met. While growth needs are not essential for survival, they are considered essential for fulfilling a person's potential, both personally and academically.

Children who meet their deficiency needs can begin working toward achieving self-actualization. Self-actualization relates positively to measures of psychological adjustment, meaning there is a higher level of ability to adapt to changes in their physical, occupational, and

social environments, giving additional opportunities to learn and grow (Bauer et al., 2006; Ivtzan & Conneely, 2009; Ivtzan et al., 2011). While self-actualization does not occur in adolescence, progressing beyond the deficiency needs allows children to work toward personal development within the growth needs and eventually self-actualization at a younger age (Ivtzan et al., 2013).

When students' basic physiological and safety needs are met, they are more likely to feel comfortable and secure in the classroom environment, which can lead to better academic performance (McLeod, 2007). National efforts to meet physiological needs go back decades to the implementation of The National School Lunch Program (NSLP), established by the National School Lunch Act (NSLA), under President Harry Truman in 1946 (Hinrichs, 2010) where students with food insecurities gained access to free and reduced pricing on school lunch.

While students who have their deficiency needs fulfilled can work toward higher levels of growth and success in school, students from vulnerable populations often do not have deficiency needs met, leaving them oftentimes unmotivated for academic success. Students from low socioeconomic backgrounds and children of color are often concentrated in schools with inadequate resources (Murnane, 2007), and struggle to achieve at the same rate as their non-vulnerable peers (Haycock, 2001; Heissrer & Parette, 2002; Ladson-Billings, 2006; Ngo & Lee, 2007). This widening achievement gap has been a critical concern discussed throughout decades of initiatives to increase the overall achievement of students throughout the United States, such as, *A Nation at Risk* (1983), *No Child Left Behind* (2001), and *Race to the Top* (2012). The shuttering of schools because of the COVID-19 pandemic increased the needs of vulnerable populations in Maslow's Hierarchy, exacerbating this gap by reducing affordable housing,

making health care less readily available, and limiting access to public education (Bailey et al., 2021; Jacob et al., 2020; Özer & Suna, 2020).

During the COVID-19 pandemic, children's hierarchy of needs were thrown into disarray, making learning more challenging for all elementary school-aged children, especially students from vulnerable populations who already face documented achievement gaps. Mandatory quarantines brought on by the pandemic disrupted family routines, careers, and education (Prime et al., 2020). Classrooms designed to meet the deficiency needs of students at school were shuttered, making a student's environment a new variable beyond a teacher's control (Gobin et al., 2012). Fluctuating routines, a lack of traditional classroom instruction, and digital divides (lack of access to technology and internet) challenged students in vulnerable populations (Gillett-Swan, 2017; Vogels et al., 2020). Engagement with the curriculum decreased as the amount of viewing videos of lessons online instead of interacting with knowledge remained the focus (Morgan, 2022), leaving a minimal opportunity for multisensory learning (Gillet-Swan, 2017). Low-income families were more likely to experience job loss (Annat & Gassman-Pines, 2020; Karmpman et al., 2020), and with fewer financial resources, these families were especially challenged to provide physiological needs due to instability and strained household situations (Rogers & Power, 2020).

To properly analyze the disruptions to education caused by COVID-19, it is also critical to address the teacher's hierarchy of needs. Educators struggled to provide the same opportunities that brick-and-mortar classrooms offered. Teachers were also challenged when attempting to provide academic accommodations and differentiated instruction for vulnerable populations due to their lack of experience with online classrooms. Distance learning proved

challenging when teachers attempted to utilize their inadequate training and classroom experiences to be effective educators online, with 96 percent of them self-reporting that they were not meeting their students' needs (Kraft & Simon, 2020) due to a lack of training regarding distance learning (Pokhrel & Chhetri, 2021). Moreover, schools did not have the ability to provide "one size fits all" training to help their teachers satisfy their new distance learning needs as different courses, age groups, and students have different learning needs for distance learning (Doucet et al., 2020). Teachers struggled to provide key learning elements, such as authentic assessments and timely feedback (Doucet et al., 2020) and cooperative learning (Johnson & Johnson, 2009). Simply put, face-to-face pedagogy did not apply to online learning (Pokhrel & Chhetri, 2021).

Significance of Study

Clearly, COVID-19 has impacted all levels of education, from preschool to post-secondary education, with nearly 200 countries shuttering schools between February and April 2020 (Nundy et al., 2021). The closure of schools affected 990 million learners during that same time frame, according to UNESCO (2020). As vulnerable populations worldwide struggle to access quality education, the results of this study examine how students in one Central Florida district achieved academic success despite the effects of the COVID-19 pandemic. Impacts on educational equity will also be addressed to provide a better understanding of the consequences of distance learning through an analysis of one Central Florida school district's response to distance learning, new instructional models, and growing absenteeism.

Education is heavily emphasized within the SDGs with a broader target of achieving universal primary education (Ahimbisibwe & Ram, 2019; Caprani, 2016; Unterhalter, 2014;

Webb et al, 2017). SDG4 aims to "ensure inclusive and equitable quality education and promote lifelong learning opportunities for all" (United Nations, n.d.) To accomplish this ambitious goal, the SDGs focus on improving access to education, specifically in developing countries and rural parts of the world (Ahimbisibwe & Ram, 2019; Caprani, 2016). The implementation of the SDGs by the UN Member States (in 2015) intended to provide balance throughout the world economically, socially, and environmentally. (Fonseca & Carvalho, 2019). However, the COVID-19 pandemic has challenged these lofty goals that were already lagging prior to 2020 (Barbier & Burgess, 2017). Even after the implementation of the SDGs, there was still an inadequate amount of execution worldwide due to economic disparities, conflict, and discrimination based on gender, race, and socioeconomic status (Rosati & Faria, 2019; Aly et al., 2022; Pizzi, et al., 2020.) Further complicating the situation, the UN reported that sufficient funding to maintain the stringent timeline of the SDGs had not been achieved (Sachs et al., 2020).

Purpose of Study

The purpose of this study is to examine how the performance in English Language Arts (ELA) and Mathematics, as measured by the Florida Standards Assessment (FSA), has been influenced by racial and socioeconomic factors before and after the COVID-19 pandemic. Specifically, this research aims to investigate how being Black or being low-socioeconomic status (low-SES) students moderates the relationship between scale scores in ELA and Mathematics during the 2021-2022 school year compared to the 2018-2019 school year. By analyzing these variables, the study seeks to understand the educational disparities that may have

been exacerbated or mitigated by the pandemic, providing insights for policymakers and educators to address achievement gaps and improve educational equity.

Research Questions

This dissertation seeks to answer the following key research questions

Research Question 1

To what extent does being black moderate the relationship between scale scores in (a) ELA or (b) Mathematics on the Florida Standards Assessment during the 2021-2022 school year compared to the 2018-2019 school year?

- Variables
    - Moderator: Race (African American, Asian, Caucasian, Hispanic, Other)
    - Independent: Year of assessment
    - Dependent: FSA ELA achievement level, FSA Mathematics achievement level
    - Statistical Tool: Two-way Analysis of Variance (ANOVA)

Research Question 2

To what extent does being a low-SES student moderate the relationship between scale scores in (a) ELA or (b) Mathematics on the Florida Standards Assessment during the 2021-2022 school year compared to the 2018-2019 school year?

- Variables
    - Moderator: Economic status (Enrolled in Free/Reduced Lunch)

- Independent: Year of assessment
- Dependent: FSA ELA achievement level, FSA Mathematics achievement level
- Statistical Tool: Two-way Analysis of Variance (ANOVA)

The field of research surrounding emergency education through the COVID-19 pandemic, is progressing rapidly. The literature surrounding emergency education is more readily available yet still limited and wildly diverse based on the type of emergency, region, and access to the situation (Burde et al., 2017). Research is increasing and improving as data becomes more readily available following disasters worldwide. There is a significant emphasis on information from governmental organizations, such as UNICEF, the World Bank, UNESCO, and the United Nations, who typically are involved in the aid process following a disaster or conflict.

One variable that creates a challenge when studying emergency education is the displacement of people in the affected area. It is challenging to collect multiple data points from subjects who are often moving from one place to another or who have limited means of contact through their displacement (Kagawa, 2005). The greatest difference between the COVID-19 global pandemic and other situations involving emergency education is that most emergencies happen in one geographical location, allowing governments and organizations to focus their funding, aid, and resources on the area of impact. The COVID-19 pandemic is the first of its kind in the modern era because of how quickly the virus spread due to high global connectivity and travel. The world has experienced the effects of shuttered schools, overcrowded hospitals, and economic strain (Aristovnik et al., 2020; Hussein et al., 2020).

These research questions will be answered by analyzing the performance of standardized student scale scores from the Florida Standards Assessment from 2019 through 2022.

Definition of Terms

COVID-19: A disease caused by a strain of coronavirus. The virus is linked to similar viruses within the severe acute respiratory syndrome (SARS) as well as some common colds. The virus is transmitted through direct contact with other people's respiratory droplets, often from coughing or sneezing (Bender, 2019).

Florida Standards Assessment (FSA): An assessment program for multiple course subjects administered to third through 12th grade students in the state of Florida. The intended use varies, but primarily, scores are utilized to make decisions based on student outcomes, identify student growth, and determine school effectiveness (Owens et al., 2016).

Inequities (Inequality): challenges or barriers of opportunity based on race, ethnicity, socioeconomic status, language, able-ness, gender, sexual orientation, and immigration status (Chu, 2019).

Quality Education: Under the guide of the Sustainable Development Goals, the United Nations describes quality education as a system which provides students with knowledge, skills, and competencies that individuals will need to lead productive lives. Quality education is inclusive, relevant to the needs within the community, equitable, effective, engaging, and supportive (Boeren, 2019).

Race: each of the major groupings into which humankind is considered to be divided on the basis of physical characteristics such as skin tone, culture, history, language, etc.; an ethnic group (Carver-Thomas & Darling-Hammond, 2017; Henry et al., 2020; Merolla & Jackson, 2019).

Socioeconomic Status: relation to or concerned with the interaction of social and economical factors. For the purpose of this study, low-socioeconomic status refers to students who are registered with the Cimmaron County Public School Free and Reduced Lunch program (Bishop et al., 2019; Buheji et al., 2020; Chu, 2019; Henry et al., 2020; Zhao et al., 2012).

Vulnerable Population: factors affecting equality for qualities of children which include gender, race/ethnicity, socioeconomic status (SES), or disability (United Nations, 2015).

Summary

Chapter One introduced provided readers with an overview of the study. It is important to reiterate how each community impacts the success of the much larger goal of improving access to quality education as outlined in the SDGs. While Central Florida is not fully representative of the global community, the student data within this study does impact a larger global mission. Furthermore, it is important to understand that school closures negatively impacted access to quality education for school districts with ample financial and infrastructural resources. This begs the question, what did access to quality education look like for students in school districts without the financial resources?

To help the reader better understand this concern, the researcher provided background on the importance of quality education and how the UN has led in setting the standard for global access to academics with specific goals outlined in the MDGs and SDGs. An introduction to emergency education's purpose and a brief overview of prior health pandemics was discussed. The researcher provided the significance of the problem, demonstrating that 1.6 billion students are being affected by closures and that vulnerable populations, who already struggle with equitable access, are even more negatively impacted than their non-vulnerable peers. Research points to possible academic complications for these students in a post-pandemic era by losing access to classrooms and face-to-face instruction. Cimmaron County Public Schools, a pseudonym for a large public school system in central Florida, was introduced as the site of the study, which is demographically representative of the United States, serving a diverse population with a large sample size of student data. Maslow's Hierarchy of Needs was presented as a theoretical lens, connecting the disruption of lockdowns to the critical base needs of safety,

security, and belonging. Information regarding the potential for future learning loss was shared, negatively influencing the likelihood of attaining SDG4 and critical targets within the quality education umbrella. Finally, the research questions were presented as well as definitions of key terms.

Chapter Two will delve into a comprehensive review of the existing literature on the role of education and its importance as a catalyst for personal and societal growth. The chapter will explore global education objectives, highlighted by the MDG and SDGs. An examination of disparities in education prior to the COVID-19 pandemic will reveal inequities across different regions and demographics. Furthermore, the chapter will analyze emergency education's purpose, uses, and implementation during the COVID-19 pandemic. Finally, the review will consider the evolving landscape of post-pandemic education, focusing on the long-term impacts that school closures have on students, especially those from vulnerable populations.

CHAPTER TWO: LITERATURE REVIEW

Introduction

Education is often considered the cornerstone of societal progress and individual success, (Beltran et al., 2021; Fischman et al., 2006; Korzhov & Pasco, 2021; Long, 2006; Lunze & Paasche-Orlow, 2014; Luyten et al., 2005; Verhauest et al., 2018) providing the knowledge and skills necessary for individual growth, economic advancement, and social cohesion (Ahimbisibwe & Ram, 2019). As the world continues to evolve, there is an ever-increasing demand for access to quality education (Cascio & Schanzenbach, 2013; Gidley et al., 2010; Malhoit, 2005). Throughout history, there have been many challenges to equity in education. Before the pandemic, many educational disparities already existed worldwide (Bravemen & Gruskin, 2003; Graetz et al., 2020; Kostyo et al., 2018). These inequities, often rooted in socioeconomic inequalities, ethnicity, geographic location, gender, and disability, create barriers to accessing quality education (Evans, 2004; Voigt et al., 2015). Such barriers lead to tremendous differences in educational outcomes (Roscigno et al., 2006).

The beginning of the COVID-19 pandemic exacerbated these existing disparities and introduced new challenges for students, teachers, families, and schools. Emergency education, which started with the overnight transition to online learning, identified a digital divide where students from low-income families struggled with limited access to technology or internet connectivity (Beaynoyer et al., 2020; Brown et al, 2020; Reimers, 2022). When schools were shuttered to help slow the transmission of COVID-19, students missed out on critical services, such as school meals and mental health support, further widening their academic performance gap (Kinsey et al., 2020; Reimers & Schleicher, 2020).

School closings impacted the fulfillment of needs as outlined by Maslow's Hierarchy, discussed in Chapter One. Student routines were heavily impacted, with instruction moving to online classrooms (Doll et al., 2021; Doucet et al., 2020; Mcleod, 2007). Those who received breakfast and lunch from school had to find new ways to eat throughout the day (Doucet et al., 2020). A layer of safety was removed, as schools often serve as a safe space for children from difficult homes (Doll et al., 2021; Doucet et al., 2020; Pokhrel & Chhetri, 2021). For students in vulnerable populations, there was a constant need to adapt and learn how to survive instead of focusing on academics (Garcia & Weiss, 2020). For a population with large achievement gaps prior to school closures, this became a new challenging barrier for students to overcome (Reimers, 2022).

To further explore this educational gap, this chapter delves into the importance of education, global education objectives, such as the Sustainable Development Goals (SDGs), disparities in education prior to the COVID-19 pandemic, the multifaceted impacts of the pandemic on education, an examination of emergency education measures, and the ongoing efforts to align post-pandemic education with global goals.

Importance of Education

Quality education is critical for economic opportunity and social mobility (Brown, 2013). In 1848, Horace Mann, known as the 'Father of the Common School Movement' in the United States, wrote in a report to the State Board of Education in Massachusetts that the intended purpose of education was to be the great equalizer among people (Growe & Montgomery, 2003; Kaushal, 2014). Until this point, education lacked standardization, and access to schooling was largely determined by social class, proximity to schoolhouses, race, and gender (Vinovskis,

1970). The Common School Movement sought to create social harmony by overcoming poverty, crime, poor health, ignorance, sloth, and greed (Dotts, 2010). Mann's movement continues to evolve in the United States and worldwide as governments and organizations work to ensure all children receive equal access to quality education.

Educational disparities exist in countries worldwide even with a growing on regulating proper access to education (Ball et al., 2014; Roscigno et al., 2006; UNESCO, 2015), quality education (Mizunoya et al., 2016; Reardon, 2011; Nicholas et al., 2012), race/ethnicity inequality (Barnes et al., 2007), gender inequality (Hill, 2001; Walkerdine et al., 2001), language barriers (Graham et al., 2011; Hornberger, 2003; Valdiviezo, 2013; Klimoviene et al., 2006), and socio-economic disparities (Alexander et al., 2001; Heller et al., 2015; Kim & Quinn, 2013). Each of these problems presents a unique set of challenges requiring a multi-faceted approach to address the factors perpetuating educational inequality.

Access to education is a major barrier for students working to obtain an education due to unequal educational opportunities and resources within the population (Ball et al., 2014; Roscigno et al., 2006; UNESCO, 2015). In many countries, there are resource disparities for students living in rural and impoverished communities creating barriers to their schooling (Kober, 2001; Roscigno, 2006). For example, students may have to travel great distances to get to the closest schoolhouse (Wagner; 2017). Teacher shortages can also be a burden for students accessing education, along with a lack of experienced teachers delivering quality education in underperforming schools (Kober, 2001). Schools operating without enough staff members may cause overcrowded classrooms and/or underqualified instructors. (Jukes et al., 2017). Moreover, some societies or cultures prioritize schooling for males, discouraging girls from attending

school due to traditional gender roles within their community (Mullen, 2010; Roscigno, 2006). Ensuring students have access to education is critical in promoting social development, for it is at school where this foundation is set (Beltran et al., 2021; Boeren, 2019; Unterhalter, 2019). The school empowers individuals, fosters economic growth, reduces inequalities, provides social interaction, and, when done well, creates a cycle of development where each generation is better equipped to meet the challenges of the future (Korzhov & Pasko, 2021; Malhoit, 2005; Moretti, 2004; Verhaest et al.., 2018).

However, even when children have access to education, the quality of the education they receive may vary. In many countries, schools in rural and low-economic areas often lack the necessary resources, infrastructure, and trained staff to meet the needs of students (Chaudhury, 2006; Dietrichson et al., 2017; Ito, 2012). In urban areas, many schools with low budgets lack up-to-date textbooks or school supplies to prepare students for success (Ladson-Billings, 2006; Orfield & Chungmei, 2006). In many cases, there are large urban areas with private schools enrolling the best and brightest, providing their students with a more enriching educational experience than their less financially secure peers (Clotfelter, 2004; Jähnen & Helbig, 2022; Saporito, 2003). While there is evidence that private school enrollment is increasing (Andrabi et al., 2008; Kremmer et al., 2008), private institutions often require hefty tuition fees, and are located in wealthier neighborhoods, creating a barrier for low-income families (Jähnen & Helbig, 2022; Saporito, 2003; Weis & Cipollone, 2013). These private schools usually have access to modern technology, updated facilities, smaller teacher-to-student ratios, and oftentimes more highly trained teachers (Durán-Narucki, 2008; Singh, 2016). They may also offer additional opportunities that their underprivileged counterparts do not have, such as a broader range of course options and extracurricular activities, as well as a more direct pathway to advanced

educational opportunities (Fischman, 2001; Henderson et al., 2020; Pianta & Ansari, 2018; Sakellariou, 2017). Students from more financially stable backgrounds "tend to receive the types of secondary education that provide more scholastic preparation, improve academic performance, and increase chances of later entering more demanding and prestigious university programs" (Triventi et al., 2020). The same study found that students with less educated parents are less likely to enroll in more prestigious educational tracks, even when they are academically equal to their peers (Triventi et al., 2020). Thus, quality education, or a lack thereof, creates another hurdle to attaining economic opportunity and social mobility.

Gender inequality also plays a critical role in accessing education (Bericat, 2012; Evans et al., 2020; domestic work is a priority for women and girls (Njoh, 2018). This prevents many girls from starting or completing school. Another concern worldwide is the safety of girls attending school. In Afghanistan, the Taliban has suppressed women's educational rights and even murdered young girls who publicly criticize their beliefs (Goodson, 2001; Hirschkind & Mahmood, 2002; Neyazi, 2023). Clearly, violence is a major concern for families when sending their daughters to school (Abuya et al., 2012; García-Moreno et al., 2005; Goodson, 2012). For example, in many East and West African countries, there is a high prevalence of sexual abuse, specifically for girls with disabilities (Hui et al., 2018). In Zambia, more than 15,000 cases of student pregnancy were reported in 2015 alone (Zuilkowski et al., 2019). Aside from sexual violence, child marriages and early pregnancies also make it more difficult for young women to obtain their educational goals (Male & Woodon, 2018).

Language presents another great challenge for students attempting to access education. Students who struggle to understand the language spoken in the classroom will probably have a difficult time understanding the curriculum (Mangrio et al., 2019; Tollefson & Tsui, 2014). In

some countries, there are hundreds of languages and dialects spoken, yet there may be languages used in educational settings that are unfamiliar to children (Helot & Laoire, 2011; Valdiviezo, 2013). Take Botswana, for example, a rural African country bordering South Africa, Zimbabwe, Namibia, and Zambia. While English is the official language of Botswana, Setswana is the national language even though there are more than a dozen languages spoken including Kalanga, Kgalagadi, and Shona, among others (Chebanne & van Pinxteren, 2021). Even with such language diversity, schools begin teaching in Setswana in early primary school, then transition to English in grade five, providing a school curriculum that lacks sensitivity to local contexts (Mangrio et al., 2019; Mokibelo, 2016; Molosiwa & Boikhustso, 2016; Pansiri, 2008). For children who speak one of the other dozens of languages, they must overcome linguistic barriers to access curriculum (Mufanechiya & Mufanechiya, 2011). Without knowledge of the language of instruction, students are limited in their ability to achieve academically.

Low-income families also struggle to access the same quality of education as their higher-income peers (Crosnoe & Cooper, 2010; Fahle et al., 2020; Gee, 2018; Gruijters & Behrman, 2020; Raver et al., 2007; Ridge, 2011). Resources, such as books to read at home, access to technology to assist with studies, and understanding the educational system are primary concerns for low-socioeconomic families. Many of these families struggle to navigate the system because the adults in these homes are products of the same struggles (Orthner et al., 2004; Ridge, 2011). Moreover, these students are more likely to experience food insecurities, homelessness, and other forms of stress that impact their ability to learn, as outlined by Maslow's Hierarchy of Needs (Adielle & Abraham, 2013; Bauer et al., 2008; Doll et al., 2021; Heckman, 2006; Levenson, 2017). Studies show that these concerns lead to higher rates of absenteeism and increased drop-out rates (Gee, 2018; Jacobs & Lovett, 2017). Children from these families may

be less likely to value the importance of education and may not have the same opportunities for post-secondary education and career opportunities as their more financially stable peers (Heckman, 2006). Quality learning directly correlates to future earnings and social stratification later in life (Duncan & Murnane, 2011; Heckman, 2006).

The level of disparity is as diverse as the people within each community, making it challenging to develop a one-size-fits-all approach to fighting inequities. This is why governments, non-profit organizations, and the private sector can all play a role in creating educational policies, laws, systems, and curricula to create a more equitable and inclusive system. As noted, many of the disparities in education are often linked to social and economic inequalities within a community (Ball et al., 2014; Roscigno et al., 2006; UNESCO, 2015). Local governments and private organizations try to address these disparities, while there is also global recognition of these disproportions.

Millennium Development Goals

At the beginning of the new millennium, the United Nations established the Millennium Development Goals (MDGs), which comprised a set of eight goals designed to address global poverty and to improve the living conditions of people in developing countries (Fukuda-Parr & Hulme 2011; McArthur, 2014; Waage et al., 2010). The United Nations' vision set clear targets and benchmarks for progress in areas such as eradicating extreme poverty and hunger, promoting gender equality, reducing child mortality, improving maternal health, combating HIV/AIDS, malaria, and other diseases, ensuring environmental sustainability, and developing global partnerships for development (Sachs, 2012; Sachs & McArthur, 2005; McArthur, 2014; Waage et al., 2010). All of these established goals were accompanied by a deadline of 2015. The MDGs

also set the target for an improvement in the number of educated children worldwide with goal 2: achieve universal primary education (Bisbee et al., 2019).

Universal primary education was included in the MDGs because the UN identified education as a fundamental human right and a critical factor in reducing poverty and promoting social mobility (Bisbee et al., 2019; Fukuda-Parr & Hulme, 2011). The UN's overall goal was to increase access to primary education, especially in developing countries (Fukuda-Parr & Hulme, 2011; Unterhalter, 2014; Webb et al., 2017). According to the United Nations, the MDGs made dramatic progress thanks to concerted global, regional, national, and local efforts (Ki-Moon, 2017). An official UN report identified that enrollment in primary schools increased from 83 percent in 2000 to 91 percent in 2015 (Bruns & Rakotomalala, 2003). The number of primary-age students who were out of school fell by almost half to an estimated 57 million children in 2015, while youth literacy increased globally from 82 percent in 1990 to 91 percent in 2015 (Waage & Yap, 2015).

While the UN touts its success in reducing the number of out-of-school primary-aged children and increasing literacy rates, it acknowledges that there was still work to be done (Dreher et al., 2008). Critics of reported MDG success rates point out that some regions are climbing a steeper hill than others, such as African countries, which are furthest from the target of 100 percent student enrollment (Clemens, 2004; Easterly, 2009). However, if the goal had been written to increase primary school enrollment, African countries would have excelled, expanding primary enrollments more rapidly than Western countries for several decades (Clemens, 2004). Ultimately, global enrollment in primary education increased in the time span of the MDGs (UNESCO, 2017). However, while the MDGs focused on reducing poverty and

improving the living conditions of people in developing countries, the United Nations identified room for improvement and set additional benchmarks at the United Nations General Assembly in 2015 (Biamba, 2014; Caprani, 2016; Kushner & Nunes, 2022).

Sustainable Development Goals

The Sustainable Development Goals (SDGs) are a set of 17 goals with 169 targets focusing on the continued sustainable development of global society (Fukuda-Parr, 2016; Kumar et al, 2016). While the MDGs focused heavily on reducing poverty and improving basic health and educational outcomes, the SDGs aim to ensure prosperity for all (Barbier & Burgess, 2017; Dreher et al, 2008). SDGs are built on the premise that all developed or developing countries can improve economic, social, and environmental challenges (Fukuda-Parr & Muchhala, 2020; Sachs 2012). Specifically, SDGs targeting climate change, gender inequality, and sustainable economic growth, regardless of the country's level of development, put the responsibility of growth toward the desired goal in the hands of each country (Barbier & Burgess, 2017; Fukuda-Parr, 2016; Kumar et al., 2016; Sachs, 2012). This more holistic approach to achieving sustainability is more comprehensive and ambitious than the previous MDGs, with an overall timeline to achieve sustainable development by 2030 (Caprani, 2016; Dreher et al., 2008; Fukuda-Parr, 2016; Kumar et al., 2016).

Education is heavily emphasized within the SDGs with a broader target of achieving universal primary education (Ahimbisibwe & Ram, 2019; Caprani, 2016; Unterhalter, 2014; Webb et al, 2017). SDG 4 aims to “ensure inclusive and equitable quality education and promote lifelong learning opportunities for all” (United Nations, n.d.) To accomplish this ambitious goal, the SDGs focus on improving access to education, specifically in developing countries and rural

parts of the world (Ahimbisibwe & Ram, 2019; Caprani, 2016). There is also an emphasis on access to pre-primary, primary, and secondary education, ensuring that students have the opportunity to pursue advanced degrees or training to promote social mobility within their societies (Freistein & Mahlert, 2016). Increasing access to education also relies heavily on eliminating gender disparities in schools (Freistein & Mahlert, 2016; Kushnir & Nunes, 2022). The SDGs seek equal access to education in countries where girls are not allowed to attend school and increase completion rates where attendance is permissible (Freistein & Mahlert, 2016; Kushnir & Nunes, 2022). Beyond access, the SDGs aim to improve the quality of education, provide more qualified teachers, improve the quality of learning materials, and promote innovative teaching styles within the classroom (Pizzi et al., 2020; Sachs, 2012; Unterhalter, 2014; Webb et al., 2017). To ensure the sustainability of schooling in communities worldwide, lessons must be relevant to the needs of the students and society where the school is located while preparing students for the changing demands of an evolving global community.

The goal of achieving education for all is ambitious and challenging, considering the unique challenges presented throughout the global community. While SDG Goal 4 is challenging, the MDGs have proven that making incremental change is possible, with the number of out-of-school children being cut in half between 1990 and 2012 (Browne, 2012). To ensure progress, there must be collaboration between local governments, the private sector, and community members focused on eliminating academic barriers (Dreher et al., 2008; Kushnir & Nunes, 2022; Pizzi et al., 2020). One can argue that education is the foundation of the SDGs, as learning plays a critical role in promoting social, economic, and environmental progress (Sachs et al., 2019).

Achievement Gap

The SDGs' goals for education exist to help reduce and eliminate the achievement gaps that have long persisted in education (Caprani, 2016; Dreher et al., 2008; Freistein & Mahlert, 2016; Hák et al., 2016; Kushnir & Nunes, 2022; Pizzi et al., 2020). For example, there is a well-documented disparity in the academic rigor of education for students from different groups, particularly between students from upper- and lower-class families as well as minorities and their peers (Henry et al., 2020; Lee et al., 2006; Merolla & Jackson, 2019; Robinson, 2016). Data highlighting these disparities is evident in standardized assessments, graduation rates, and college enrollment numbers (Psacharopoulos & Patrinos, 2018). Multiple factors exist that contribute to this achievement gap, including socioeconomic status, race and ethnicity, school and teacher quality, and cultural and linguistic differences.

Clearly, socioeconomic status (SES) significantly contributes to the achievement gap in education (Crosnoe & Cooper, 2010; Gruijters & Behrrman, 2020; Owens et al., 2016). Students who are from families with low incomes often face a range of challenges that can hinder their access to quality education (Fahle et al., 2020; Gee, 2018; Owens et al., 2016). Most apparent, is the lack of access to resources for low SES students (Patturelli, 2021; Ridge, 2011). Schools in low SES areas may have fewer resources, qualified teachers, and fewer staff members (Darling-Hammond, 2003; Evans, 2004; Flores, 2007). These students may also lack critical components like books or computers, which may make learning at home more challenging. These components may be more readily available for their wealthier peers, making learning easier. (Evans, 2004; Thomas, 2008). Another challenge is the stress and instability that poverty can bring to low-SES families. Children from low-income families are more likely to experience

food insecurity and homelessness, which can increase the number of days students are absent from school. Consequently, it is more difficult for them to remain engaged with their studies. (Evans, 2004; Gundersen & Ziliak, 2014; Ridge, 2011). Students from poor families are also less likely to participate in educational opportunities outside of the classroom. For example, financial barriers prevent low SES students from participating in after-school programs or summer camps that support learning and development (Durlak et al., 2010; Lauer et al., 2006). All these factors may play a role as children from low-income families struggle to achieve at the same level as their wealthier peers (Crosnoe & Cooper, 2010; Gruijters & Behrrman, 2020; Owens et al., 2016). Moreover, financial barriers increase academic struggles, which leads to lower test scores and a lesser chance that they will be able to graduate from high school or attend college (Evans, 2004; Fahle et al., 2020; Lauer, 2006; Owens, 2016).

Race and ethnicity also play a critical role in the educational achievement gap. Students from marginalized racial and ethnic groups, such as Black, Hispanic, and Indigenous students, face barriers in accessing quality education compared to their White peers (Henry et al., 2020; Lee & Bowen, 2006; Merolla & Jackson, 2019; Psacharopoulos & Patrinos, 2018; Robinson, 2016). One reason for this disparity is a lack of resources within the schools or school systems. Students from marginalized racial and ethnic groups often attend schools with fewer resources and learn from less experienced teachers because of higher turnover rates (Barnes et al., 2007; Darling-Hammond, 2003; Evans, 2004; Flores, 2007; Guin, 2004). The lack of a consistent faculty and staff makes building personal relationships between students and staff challenging. It also gives administrators less ability to build upon previous professional development, making it more challenging to enhance the pedagogy of current staff members (Barnes et al., 2007; Carver-Thomas et al., 2017; Fahle et al., 2020; Guin, 2017). These schools are often underfunded and

struggle to provide quality reading materials, updated technology, and opportunities to provide students with supplemental academic opportunities like field trips, extracurricular activities, advanced courses, and electives (Crosnoe & Cooper, 2010; Henderson et al., 2020; Roscigno, 2006 Weis & Cippollone, 2013).

Students from minority groups also endure systematic racism and implicit bias that negatively impacts achievement in schools (Bergerson, 2003; Gillborn, 2006; Sriprakash et al., 2020). Students of color experience increased bias from their teachers and peers, reducing their feeling of belonging within their school and leading to lower expectations for their academic success (Gershenson, 2016). Schools also struggle to provide students with faculty representative of student demographics (Fox, 2015; Ouzard, 2014). In turn, this can create challenges in providing students of color mentorship and opportunities to learn about their own culture and to celebrate diversity and inclusion (Fong et al., 2017; Fox, 2015; Ouzard, 2015; Woodley, 2017).

Response to Achievement Gaps

Just as the UN has identified achievement gaps in education worldwide, the United States' Department of Education (DOE) has put programs and interventions in place to reduce achievement gaps in many areas that show significant disparities, such as socio-economic class and race (Fahle et al., 2020; Flores, 2007; Lauer et al., 2006; Merolla & Jackson, 2019; Nichols et al., 2019; Roscigno et al., 2006).

Multiple efforts are made within the U.S. DOE to reduce the achievement gap between impoverished students and their more affluent peers. Title I funding is provided to schools with significantly high numbers of low-income students (Carver-Thomas & Darling-Hammond, 2017; Lauer et al., 2006; Roscigno et al., 2006) Funding that is allotted to Title I schools is intended to

support students in a variety of ways, such as reducing class size, providing additional teachers' aides, coaches, and other staff members, as well as an increase in professional development opportunities for staff (Carver-Thomas & Darling-Hammond, 2017; Lauer et al., 2006; Roscigno et al., 2006). Many Title I schools utilize additional funding to support students with before or after-school programs, additional technology, and summer programming (Gordon, 2004; Ritzhaupt et al., 2008). Activities involving parents before and after school are also Title I services provided to schools to help foster learning in low-income families (Epstein, 2005; Posey-Maddox & Haley-Lock, 2020).

Access to education for low-income families is also a top priority for the U.S. DOE (Gregg et al., 2019; Lauer et al., 2006; Nichols et al., 2012). Much like the MDGs, the U.S. government has put an emphasis on early learning opportunities (Roscigno et al., 2006; Posey-Maddox & Hailey-Lock, 2020; Menard & Wilson, 2014; Lauer et al., 2006). For example, the "Race to the Top – Early Learning Challenge" provided grants to states in an effort to improve early childhood education programs for low-income families (Howell, 2015; McGuinn, 2012; Weisenfield et al., 2020). By providing children with foundational skills and programming designed to develop social-emotional health, they are more likely to succeed in kindergarten and beyond (Weisenfield et al., 2020). College access is also a critical element in reducing disparities between social classes (Fischman, 2006; Gidley et al., 2012; Ladson-Billings, 2006; Roscigno et al., 2006). To achieve this goal the U.S. DOE has implemented many initiatives such as Upward Bound which provides academic support and college preparatory services to low-income high school students (Callahan & Goodwin, 2014).

Career and Technical Education (CTE) is another means of providing support for low-income students. The development of CTE programs by the DOE provides students with the skills and knowledge needed for technical careers that are high-demand occupations. By providing training to students in specialty fields, a path is formed for low-income students to access well-paying jobs to improve their social mobility (Doughtery, 2016).

In recent history, the US DOE has put in place many initiatives attempting to reduce the achievement gap between Minority and White students. President George W. Bush introduced the No Child Left Behind (NCLB) law in January of 2001 (No Child Left Behind [NCLB], 2002). NCLB aimed to increase student achievement to 100 percent across reading, math, and science by 2014 (Brown, 2007; Byrd-Blake et al., 2010).

A pillar of NCLB emphasized accountability and transparency in K-12 education by focusing on standardized assessment data (Byrd-Blake et al., 2010; Ramanathan, 2008). However, one of NCLB's emphases is that teachers understand content instead of pedagogy (Porter-Magee, 2004). NCLB required states to define student proficiency in math and reading and to establish targets to demonstrate those proficiency levels (NCLB, 2002). At the end of the school year, students would participate in a standardized test to demonstrate their mastery of state standards. This heavy emphasis on standardized testing drew one of the most significant complaints from critics (Borkowski & Sneed, 2006). NCLB required a heavy dose of data to be shared with stakeholders and local and federal governments. This allowed states to determine whether schools were making Adequate Yearly Progress or AYP (Borkowski & Sneed, 2006; Byrd-Blake et al., 2010; NCLB, 2002). Schools failing to meet rigorous AYP standards were met with more severe consequences as schools continued to miss desired metrics, including allowing

students to transfer higher-performing schools (McGuinn, 2012; Ramanathan, 2008). Another element of NCLB's assessment and reporting was the comprehensive report of how specific subgroups performed each school year (NCLB, 2002; Ramanathan, 2008). The law required schools to report achievement levels by factors such as race, ethnicity, and socioeconomic status. Schools not meeting expectations then needed to take action to address disparities in academic outcomes and could even lose Title I funding if designated as a "Needs Improvement" school (Borkowski & Sneed, 2006; Gordon, 2004). NCLB was heavily criticized for the challenging expectations of student assessment and the lack of quality teacher preparation (McGuinn, 2006; Porter-Magee, 2004; Ramanathan, 2008). Ultimately, the results from NCLB were mixed, in part because teachers and administrators did not support the system (Mintrop & Sunderman, 2009). While each state determined its level of proficiency, studies indicated that reading proficiency remained stagnant, though there was an increase in math proficiencies (Lee & Reeves, 2012).

In 2009, President Barrack Obama and the United States DOE implemented the Race to the Top (RTTT) initiative, providing an initial 4.35 billion dollars in competitive grants to states that implemented educational reforms to improve student achievement (Boser, 2012; McGuinn, 2012). The implementation of RTTT took on a different approach than NCLB by incentivizing schools to perform well instead of applying sanctions for failing to meet criteria (Manna & Ryan, 2011). The goal was to increase student achievement by funding highly educated and diverse teachers and leaders, creating rigorous standards, improving low-achieving schools, and having a data system to support instruction (Boser, 2012). RTTT aimed to help drive student achievement by adopting the Common Core standards, a more rigorous set of benchmarks and assessments (Viteritti, 2011). To improve teacher quality, RTTT adopted new evaluation requirements for teachers and incentivized retaining highly effective instructional staff members (Boser, 2012;

Viteritti, 2011). Administrators utilized data to inform instruction and to communicate results with stakeholders in the school community (Boser, 2012). A key element of RTTT was also centered around providing access to quality early learning programs to reduce achievement gaps in high-needs populations (Weisenfeld et al., 2020). There was also an emphasis on recruiting, developing, rewarding, and retaining effective teachers and administrators in high-needs schools. Race to the Top is credited with changing educational reform discussion in the United States (Martin & Lázaro, 2011).

Additional reform in educational policy came in 2015, when the Every Student Succeeds Act (Every Student Succeeds Act [ESSA] 2015) was signed into law, replacing NCLB. ESSA was built on four guiding principles: higher-order skills for students, equity measures that assess school performance and progress, resource equity, and equity strategies and evidence-based interventions (ESSA, 2015). The intention of this law was to allow states more freedom and flexibility in developing their educational plans as opposed to the rigid standardized assessment data requirement mandated by NCLB (Kostyo et al., 2018). ESSA sought a more "whole child" approach, requiring states to create multi-data point student achievement portfolios based on graduation rates, college readiness, student engagement, and standardized test scores to increase equity across diverse schools (Cook-Harvey et al., 2016; Garcia & Weiss, 2020). Much like NCLB, ESSA requires states to report subgroup achievement levels as one of the main goals. Like previous reforms, it was designed to reduce the disparities among these groups (Kostyo et al., 2018). While ESSA's success level is still being determined, states report increased flexibility in creating educational plans and reduced emphasis on standardized testing, allowing schools to focus on multiple measures to determine a student's progress (Darling-Hammond et al., 2016). Early reports point to all-time highs in graduation rates (Bransberger et al., 2020). However,

many of those graduates are required to enroll in remedial reading, writing, or math because they do not have the foundational skills to perform in post-secondary school (Broomberg & Theokas, 2016). While there is still work to be done, ESSA represents an important step in promoting accountability, transparency, and equity in education (Bransberger et al., 2020). Progress toward academic and equitable access to education is significant because, like other educational policies, the goal of ESSA is the continuous improvement of educational systems for all students.

One of the earliest attempts to bring equitable access for all to education came in the early 1800s when Horace Mann was appointed secretary of Michigan's first state board of education in 1837. Since then, there have been several pinnacle moments throughout United States public education's brief history, such as Plessy v Ferguson [1896], the School Lunch Act [1946], Brown v Board [1954], and Title IX [1972]), but overall, educational reform has experienced minimal change. Clearly, the DOE has implemented various initiatives to increase student achievement and reduce the gap between white and minority students, low socio-economic students, and their more affluent peers, but in many cases, there are still challenges to achieving educational equality and the continued marginalization of these groups within the United States (Baker er al., 2016; Chu, 2019; Growe & Montgomery, 2003; Leach & Williams, 2007; Roscigno et al., 2006).

Emergency Situations

Emergency education refers to the provision of educational opportunities in the event of a conflict, natural disasters, displacement, and other emergencies that occur worldwide (Burde et al., 2017; Creed & Morpeth, 2014; Kagawa, 2005; Mayai, 2020; Rush et al., 2014; Schweber, 2008; Sinclair, 2001; Tarricone, 2021). The goal of emergency education is to ensure that

children impacted by a disaster maintain access to quality education, routines, development, and academic advancement (Burde et al, 2015; Burde & Linden, 2013; Davies & Talbot, 2008) as emergencies often disrupt normal educational routines (Creed & Morpeth, 2014; Davies, 2005; Kagawa, 2005; Tarricone, 2021; Winthrop & Kirk, 2008). These disruptions can be caused by damage to the school or community infrastructure, displacement of students or teachers, loss of materials used for learning, or psychological distress (Beth, 2008; Burde et al., 2017; Davies; 2005; Fernando et al., 2010; Rush et al., 2014). By providing emergency education, children can maintain a small sense of normalcy and can often mitigate the negative impact of the crises to the benefit of children's learning and development (Betancourt, 2005; Burde et al., 2017; Creed & Morpeth, 2014; Kagawa, 2005). Key components of emergency education include immediate response, temporary learning spaces, access and inclusion, curriculum and pedagogy, teacher training and support, psychosocial support, and transition and recovery (Burde et al., 2017; Creed & Morpeth, 2014; DeVaney, 2009; Hemmer & Elliff, 2020; Steeves et al., 2017). Whether the crisis in the community is caused by individuals or nature, emergency education provides an important resource in the lives of the children who are impacted (Burde et al., 2017; Creed & Morpeth, 2014; Kagawa, 2005; Mayai, 2020; Rush et al., 2014; Schweber, 2008; Sinclair, 2001; Tarricone, 2021).

Immediate response during a crisis is critical for emergency education to be most effective (Anderson et al., 2006; Cahill, 2010; Creed & Morpeth, 2014; Karpinska, 2012). In the aftermath of an emergency, children are often vulnerable. By organizing educational opportunities in times of crisis, children receive a sense of normalcy, including some sense of routine and safety (Burde et al., 2017; Creed & Morpeth, 2014; DeVaney, 2009; Hemmer & Elliff, 2020; Steeves et al., 2017). Routines assist in reducing the emotional stress caused by the

crisis by giving students a safe space where they can learn, play, and interact with their peers (Brunzell et al., 2016; Davies & Talbot, 2008; Perry, 2006). These safe spaces can promote their well-being by providing stability in a chaotic environment (Brunzell et al., 2016). The school provides children and teachers with targeted psychosocial support and assists in developing resiliency. Activities developed by humanitarian groups such as the International Rescue Committee's (IRC) "healing classroom" contribute to positive social-emotional growth by providing students with the coping skills necessary to survive a crisis (Winthrop & Kirk, 2008).

Children impacted by a crisis are more likely to be successful when emergency education is established quickly. The longer that children are out of school, the less likely they are to be successful in continuing their education (Jones & Hagul, 2001). Students displaced for long periods of time have a higher risk of dropping out of school (Jones & Hagul, 2001; Mayai, 2020; Zuilkowski & Betancourt, 2014). To avoid disruptions in educational access in developing nations after a disaster, UN agencies and Non-Governmental Organizations (NGOs) work quickly to provide emergency education to impacted areas (Burde et al., 2017; Ring & West, 2015; Sinclair, 2001). These agencies work to eliminate barriers that prevent access to learning, especially where prolonged insecurity has led to a breakdown in educational instruction (Creed & Morpeth, 2014; Sinclair, 2001; Tarricone et al., 2021).

Emergency education also seeks to increase safety and protection by intervening with temporary learning spaces or schools in safe locations (Brunzell et al., 2016; Burde et al., 2017). For example, the Inter-Agency Network for Education Emergencies (INEE) aims to provide spaces that strive to offer physical safety for students, protecting them from further harm or exploitation (Tarricone et al., 2021). When school is not in session, these spaces can also serve as

social gathering hubs for community members. For example, youth living in the Kunama camp in Ethiopia utilized emergency school tents for psychosocial events and recreational clubs during non-school hours, helping to promote mental well-being and overall positive attitudes within the community (Betancourt et al., 2012). By reopening schools, there is not only improved access to education, but there is evidence from Afghanistan that schools protect the population by deterring further attacks on the community (Pherali & Sahar, 2018; Rowell, 2013). Because emergency education sites are often opened by NGOs in homes or mosques, they are more easily monitored and protected by the community, making them less of a target than government schools (Pherali & Sahar, 2018; Rowell, 2013). These makeshift schools offer controlled and supervised environments where students can learn and receive essential support in an emergency.

Education is also a powerful tool for building resilience and fostering coping mechanisms in adversity. During emergency education, there are significant benefits to integrating social-emotional learning (SEL) into standard curriculums (Kankaraš & Suarez-Alvarez, 2019). By incorporating lessons involving SEL during emergency education, one study showed an increase in student academic achievement (Tarricone et al., 2021). Others note that integrated SEL instruction can promote the positive behaviors and attitudes of students in the classroom while reducing student misconduct, aggression, and emotional distress (Kankaraš & Suarez-Alvarez, 2019). While emergency education will not prevent or erase the trauma suffered by students within the impacted community, it can play a role in helping students overcome trauma, especially when SEL and resiliency learning are incorporated into student lessons (Reimers & Scleicher, 2020; Yeager & Dweck, 2012). Through trauma-informed teaching and specialized curriculum, children are empowered to process their experiences, develop coping skills, and rebuild their lives (Bath, 2008; Brunzell et al., 2016; Levenson, 2017).

Human-Made Emergency

Various human-made educational disruptions include armed conflict, social and political unrest, economic crisis, and environmental challenges impacting vulnerable populations (Bircan & Sunata, 2015; Deane, 2016; Rabia, 2016; Yazgan et al., 2015). Human-made reasons for emergency education typically arise from situations caused by negligence, error or conflict. These circumstances often disrupt the regular education system and necessitate special measures to provide education in emergency settings.

Civil Unrest

When people flee their homes due to conflict or persecution, they are typically in stressful and chaotic circumstances (Sidhu & Naidoo, 2018; Sriprakash et al., 2020). Schools and educational infrastructures can be abandoned, damaged, or repurposed for other uses (Beth, 2008; Burde et al., 2017). For example, beginning in April 2011, Syrians began fleeing their country due to turmoil and violence (Yazgan et al., 2015). This violence involved children crossing the line of fire to make their way to and from school, risking being kidnapped from or even killed inside their schools (Caprani, 2016). Millions of children and teachers were displaced in neighboring countries as many schools were destroyed or repurposed, leaving Syrian children without access to formal education (Tarricone et al., 2021). The Syrian conflict has also strained the resources available to students remaining in the country, making it challenging to access textbooks or other educational resources (Rabia, 2016). As conflict increased, so did the strain on the economic resources of Syrians, making it more challenging to provide educational assistance for families within their homes (Deane, 2016; Yazgan et al., 2015). For Syrian refugees in the Turkish town of Gaziantep, the influx of displaced families made it challenging to accommodate

all the children in temporary schools (Rabia, 2016). The prolonged conflict also took a toll on children's mental health, as being exposed to frequent traumatic situations made focusing on studies increasingly difficult (Chen et al., 2019). Chen et al. (2019) also notes that between trauma, poverty exposure, and human insecurity, Syrians are significantly impacted by exposure to violence. The prolonged displacement and educational deficit for Syrians will have long-term economic and stability impacts (Deane, 2016). Displacement of small communities or even cities and regions can happen worldwide.

The onset of the Boko Haram insurgency in the northeastern portion of Nigeria, for example, there was a severe impact on education due to the large number of displaced people (Burde et al., 2017; Ogunorde et al., 2022). Boko Haram, which translates to "Western education is forbidden," has killed thousands and displaced millions of Nigerians (Afzal, 2020). The militant Islamist and jihadist insurgents targeted schools, students, and educators, forcing many schools to shut their doors. There were even instances of mass abductions of school children when schools remained open, which terrified communities (Burde et al., 2017). Violence in the region leads to a massive displacement of residents seeking a safer environment for their families (Afzal, 2020). Refugee camps, where many families fled, lacked the resources to provide adequate continuous education for child refugees (Ogunorde et al., 2022). In the case of northeastern Nigeria, the gender disparity is staggering due to Boko Haram's targeted attacks on girls' education Ogunorde et al., 2022). While the Boko Haram insurgency is an example of a rebel group creating barriers to education, governments invading neighboring countries also produce threats to education.

February 2022, for example, Russia's invasion of Eastern Ukraine created barriers to education for nearly 7.5 million Ukrainian children (Júnior et al., 2022). Schools were destroyed

at the start of the insurgence, and according to the United Nations International Children's Emergency Fund (UNICEF), 17 children were killed in the first week alone (Tidley, 2022). Schools, homes, orphanages, and health centers have all been significantly impacted. Thousands have been displaced or fled from Ukraine (Osokina et al., 2023). Like Syria, there is a significant impact of trauma on student and teacher mental health, impacting the capacity to engage effectively with the educational process due to experiencing high levels of trauma (Júnior et al., 2022). Schools that remain open are also experiencing tensions between Ukrainian and Russian-speaking communities, impacting the educational process (Chayinkka et al., 2022; Júnior et al., 2022).

In all these situations, civil unrest has immediate and long-term consequences on education within these communities. Rebuilding educational facilities and systems in a post-conflict society required targeted efforts from local, national, and global leaders. Focus had to be given to rebuilding infrastructure, addressing the psychological impacts of teachers and students, and ensuring equitable access to those who remained in the impacted areas of unrest.

Armed Conflict

Armed conflict has devastating consequences on education in conflict areas (Davies, 2005; Winthrop & Kirk, 2008). Afghanistan and Bosnia are two examples of countries that have suffered educational setbacks due to armed conflict (Burde et al., 2017; Davies, 2005; Davies & Talbot, 2005; Pherali & Sahar, 2018). Widespread disruptions to schooling from damaged infrastructure, displacement of populations, and long-term social and psychological effects plague citizens of war-torn countries.

Afghanistan has endured decades of conflict, particularly during the Soviet Afghan War from 1979 through 1989, which was followed shortly thereafter by civil war, Taliban rule, and the war following the attacks of September 11 (Pherali & Sahar, 2018). These conflicts have resulted in the disruption of schooling for millions of children, especially young girls, who encountered harsh limitations under Taliban rule (Alvi-Aziz, 2008). The Taliban barred girls from going to school beyond sixth grade (Neyazi et al., 2023). For boys and men who were allowed to attend school, there were challenges such as limited curriculum and dilapidated infrastructure throughout Afghanistan war zones (Pherali & Sahar, 2018). Many schools and facilities have been damaged or destroyed, and the lack of safe and accessible infrastructure hinders children from attending school. While many residents have fled the country, those who stay are also scared to attend school due to the fear of attacks on schools and teachers, making regular attendance problematic (Neyazi et al., 2023; Pherali & Sahar, 2018). Despite efforts to rebuild an education system, there are many challenges within Afghanistan, including poverty, cultural barriers, and ongoing safety concerns, that make it difficult to access quality education.

The Bosnian War from 1992 through 1995 negatively impacted schools as well. Educational institutions were damaged or destroyed, affecting access to education for thousands of children (Swee, 2015). War in Bosnia was the cause of widespread displacement, that lead to ethnically divided regions and an inequitable and fragmented educational experience (Swee, 2015). While reconstruction efforts emerged following the war, the impact of conflict continues to influence educational dynamics within the region, such as conflict over languages being taught in schools, division over culture, and nationalism (Swimelar, 2013).

The long-term impact of war on education extends beyond physical infrastructure to psychological and social dimensions. Rebuilding an entire educational system requires addressing physical structures and the creation of inclusive policies, the promotion of social cohesion, and the provision of psychosocial support to those impacted by conflict (Burde et al., 2017; Smith, 2005; Tarricone et al., 2021). Emergency education plays a significant role in starting reconstruction efforts that will help communities resume their typical routines (Burde et al., 2017; Kagawa, 2005; SchWeber, 2005; Smith, 2005; Tarricone et al., 2021).

Natural Emergencies

Natural disasters also impact access to quality education (Burde et al., 2017; Cannon et al., 2020; Kagawa, 2005; Kousky, 2016; Tarricone et al., 2021). A disaster, such as a hurricane, earthquake, tsunami, flood, drought, wildfire, tornado, or blizzard, can damage the local school and even wipe out an entire community (Cannon et al., 2020; Carr et al., 2014; DeVaney et al., 2009; Mitsova et al., 2019; Tarricone et al., 2021). Natural disasters, for example, impact an estimated 160 million individuals and create death tolls of up to 90,000 each year (Rush et al., 2014). In many cases, research indicates that low SES families are impacted more significantly during disasters (Davis, 2007; Mitsova et al., 2018; Elliot & Pais, 2006; Kates et al., 2006; Mitsova et al., 2018; Tarricone et al., 2021).

In the case of Hurricane Katrina in Louisiana 2005, the effects of poverty were highlighted by the reality of entire African American communities excluded from educational reform and basic government efforts. (Davis, 2007; Green et al., 2007; Kates et al., 2006). Socioeconomic status was also critical to educational access, as demonstrated by the effects of Hurricane Katrina in New Orleans (Davis, 2007; Green et al., 2007; Kates et al., 2006).

According to the U.S. DOE, Katrina led to the closure of more than 100 school districts and the displacement of over 370,000 students across the impacted states. In New Orleans, more than 100 schools were severely damaged or destroyed (Senate Hearing 109-214). Many students lost their educational records, including transcripts and prior academic achievements (Senate Hearing 109-214). As students migrated away from the Gulf Coast region, they had little or no record of their academic needs and abilities. Schools in less diverse neighborhoods with low SES status lacked property and local taxes necessary to maintain the level of development reflected within more affluent areas in the region during the rebuilding process (Alzahrani, S., 2018; Davis, 2007; Devaney et al., 2009; Elliot & Pais, 2006; Green et al., 2007; Kates et al., 2006).

In September 2017, Hurricane Maria struck Puerto Rico as a powerful Category 4 hurricane. The impact of Maria was broad, damaging infrastructure, communities, and various sectors, including education. More than 1,100 public schools were impacted when Maria destroyed roadways leading to schools and the utilities that maintained school operations, with many buildings rendered unusable, which completely disrupting the educational system (Cortés, 2018; Garcia & Weiss, 2020; Orengo-Aguayo, 2019). Residents were displaced from their homes, leading to families migrating to different areas of Puerto Rico and over one million students to the mainland United States, including over a quarter million to Florida alone (Hinojosa et al., 2018). School closures, immediate and prolonged, resulted in significant time away from the classroom for students (Clark-Ginsberg et al., 2024). Maria's impact was felt throughout Puerto Rico and the island's surrounding areas, destroying much of what was in its path. The trauma and stress resulting from Maria left behind a profound psychosocial impact on students, teachers, and communities (Garcia & Weiss, 2020; Orengo-Aguayo et al., 2019).

Hurricane Harvey put Texans along the Gulf Coast in a similar predicament when the Category 4 storm devastated communities in its path. More than 1.4 million students were directly affected, including 112,000 who were displaced (Hemmer & Elliff, 2020). The fallout from the storm not only created chaos throughout the community but also accumulated an estimated 125 billion dollars in damages, including almost one billion dollars in damages to school facilities (Cannon et al., 2020; Hemmer & Elliff, 2020**)** In addition to property damage, the storm created a wave of stress and exhaustion for school staff members. Teachers had to work with Federal Emergency Management Agency (FEMA) to ensure they had a place to live. Classroom instruction was not their priority (Cannon et al., 2020), and classroom instruction was interrupted due to school closures, absenteeism, and the increased need for students' social and emotional needs (Cannon et al., 2020; Hemmer & Elliff, 2020). Many schools have remained inoperable indefinitely, leading to more significant educational displacement.

Earthquakes also cause natural devastation throughout communities. On January 10, 2010, an earthquake, registering above a level seven on the Richter scale, shook Haiti's largest urban city. Only lasting 35 seconds, the first earthquake in over 200 years crippled the underdeveloped Caribbean country (Risler et al., 2015). Around 300,000 residents of the capital city, Port-au-Prince, were killed, and over 2 million residents were left homeless. Infrastructure crumbled, including educational institutions. With nearly one and a half million people living in "tent cities" throughout the capital and over a half million people fleeing to the countryside, the already minimal educational opportunities that existed in the country were nonexistent after the disaster (Risler et al., 2015). In a country where its population already struggled to survive with minimal wages and food insecurity, the refugee camps set up throughout Haiti were seen as an upgrade to many families, making socioeconomic inequities increasingly rampant throughout the

country (Carr et al., 2014). Even more concerning was the increased susceptibility to Post Traumatic Stress Disorder (PTSD) for individuals displaced by a disaster, especially for those who represented an ethnic minority or had lower levels of education (Risler et al., 2015).

Following an emergency event, continued face-to-face or online instruction requires dedication and commitment to accommodate the dramatic change in the learning environment (Whalen, 2020). In these situations, students require additional assistance and psychological support to maintain normalcy (Alvarez, 2010). Moreover, there is also reason to be concerned about the emotional effects of the pandemic and/or disaster in the immediate future (Bath, 2008). In a review of trauma training in schools, research found that students and teachers experienced inadequate support systems and services even a year after the traumatic incident (Thomas et al., 2019).

Emergency Education

Emergency education refers to implementing educational services and support in the aftermath of the previously discussed disruptions in traditional schooling (Burde et al., 2017; Kagawa, 2005; SchWeber, 2008; Sinclair, 2001; Tarricone et al., 2021). The overall goal of implementing emergency education is to ensure that individuals, specifically children, have access to education despite challenging and often chaotic circumstances surrounding them (Burde et al., 2017; Kagawa, 2005; SchWeber, 2008; Sinclair, 2001; Tarricone et al., 2021). Emergency education can take various forms, depending on the type of crisis impacting an area and the needs of the affected population (Burde et al., 2017; Tarricone et al., 2021). Like traditional schooling, emergency education implements a learning curriculum and supports people within the community.

The types of services practiced with emergency education vary greatly based on need. In many scenarios, temporary learning spaces are required if the regular schools are damaged or inaccessible. Temporary spaces can include tents, community centers, or other safe areas where students can gather for learning activities (Tarricone et al., 2021).

When emergency education is implemented following a crisis, students likely miss substantial school attendance. Accelerated learning programs are designed to help students catch up as quickly as possible (Sinclair, 2021; Tarricone et al., 2021). Students working in these accelerated programs often focus on essential skills and knowledge, allowing students to progress through the curriculum (Burde et al., 2017; Kagawa, 2005).

Normal routines are often disrupted during crises. Given the disruptions caused by emergencies, flexible scheduling may be implemented as schools reopen (Tarricone et al., 2021). Flexible scheduling may include adjusted school hours, condensing the school calendar, or alternative attendance for students to accommodate the challenges caused by the crisis (DeVaney et al., 2009; Reimers, 2022; Tarricone et al., 2021).

Like scheduling, there are some situations where physical attendance in school may not be feasible. For some impacted areas, distance and online learning can serve as an alternative means of educating students (Burde et al., 2019; Reimers, 2022; Rush et al., 2014; Tarricone et al., 2021). This involves the use of technology to deliver educational content remotely, providing continuity in learning despite the circumstances surrounding the community (Creed & Morpeth, 2014; Rush et al., 2014).

Another possibility to mitigate learning loss in a crisis response is the distribution of educational materials (Tarricone et al., 2021). This could include textbooks, notebooks, paper,

and other resources needed to assist in learning if digital infrastructure is not widely accessible (Tarricone et al., 2021).

While students need resources and materials to help access education in emergencies, teachers need training. Teachers play a crucial role in emergency education, and training programs must be implemented to equip them with the skills needed to teach in crisis situations. In Afghanistan, for example, UNICEF assisted in training teachers during the reconstruction process (Alvi-Aziz, 2008). Moreover, training extends beyond traditional pedagogy and focuses on providing them with trauma-informed teaching practices, psychological first aid, and how to adapt to non-traditional learning environments (Burde et al., 2019; Kagawa, 2005; Ring & West, 2015; Smith, 2005).

However, teachers would not be the only ones providing trauma-informed care. Recognizing the emotional impact of crises on both students and educators who have endured emergencies is critical to recovery. Emergency education often includes psychosocial support services that provide emotional support, address trauma, and promote well-being (Bath, 2008). Psychosocial support offered to students in disrupted communities plays a critical role in rebuilding (Davies & Talbot, 2008; Kagawa, 2005). For example, in sub-Saharan Africa, adolescents in the Walanhiby refugee camp were provided targeted interventions for students and their families, leading to a holistic family and community-based approach to enhance mental health (Betancourt et al., 2012; Burde et al., 2017).

Rebuilding impacted communities is difficult, and that is why community involvement is essential in emergency education (Kagawa, 2005). In the case of Iraq, it was critical after the US-led invasion for the Iraqis to take ownership of educational reform (Murray, 2008). Engaging

parents, community leaders, and local organizations helped create a supportive network for students and contributed to the success of educational endeavors. While NGOs often help facilitate the initial organization of resuming education in an impacted community, it is important to recognize that local governments, families, and educators must also be included to maintain the same standards once emergency response teams have left the community (Smith, 2005).

Emergency education is as dynamic as the crises it aims to counteract. The goal is not only to provide immediate educational relief but also to contribute to the long-term recovery and resilience of the community and students within the community (Burde et al., 2017; Kagawa, 2005; SchWeber, 2008; Sinclair, 2001; Tarricone et al., 2021).

Emergency Education Providers

Education can help displaced persons, refugees, and all those impacted by emergencies reintegrate back into their communities. Emergency Education assists in overcoming the negative effects that emergencies have on people. Multiple organizations are instrumental in providing different services in the aftermath of crises, from rebuilding infrastructure to providing teaching resources and providing mental health support (Bath, 2008; Burde et al., 2017). Following an emergency, the focus should be on response and recovery (Tarricone et al., 2021). Thus, these organizations should focus on assisting children and adults impacted by destruction or displacement (Burde et al., 2019).

Multiple organizations are working to reduce the impact of crises on children in emergencies (Burde et al., 2019). UNICEF is key in providing equitable emergency education in conflict and disaster-impacted areas by ensuring access to quality education, safe learning spaces, and psychosocial support for children in crises (Garira, 2020; Klees & Qargha, 2014).

UNESCO's Save the Children and Education Cannot Wait (ECW) also assists with temporary learning spaces while providing educational materials and supporting teachers to ensure children continue learning and developing (Davies & Talbot, 2008; Save the Children, 2013). Other humanitarian groups, such as the International Rescue Committee (IRC) assist by supporting teacher development in times of crisis (Betancourt et al., 2012). Along with IRC, the United Nations High Commissioner for Refugees (UNHCR) and the Norwegian Refugee Council (NRC) are dedicated to protecting and assisting refugees and displaced people (Aguilar & Heusser, 2023; Tarricone et al., 2021). In collaboration with other partners, these organizations provide educational opportunities, including formal and non-formal education (Tarricone et al., 2021). These organizations also have a common thread, providing what Abraham Maslow would describe as basic physiological and safety needs (Bath, 2008; Levenson, 2017). Maslow, an American psychologist developed a theory of psychological health predicated on fulfilling prioritized innate human needs, starting with physiological and safety needs (Maslow, 1943). In response to the global pandemic 2019, the Geneva Global Hub was created to organize a web of services by many organizations to create joint action among its members and increase collaboration with other sectors to prioritize education in emergencies (Aguillar & Heusser, 2023). In times of crisis, organizations like these provide the assistance people need to acquire some semblance of normal life while meeting the basic needs described in Maslow's theory.

Organizations that respond with emergency education aim to assist the area impacted by a crisis. In the case of the SARS-CoV-2 Coronavirus pandemic, the entire global community was impacted almost instantaneously.

COVID-19 Pandemic

The SARS-CoV-2 novel coronavirus spread across the world. The COVID-19 pandemic stressed medical communities and demonstrated weaknesses across global healthcare systems (Ciotti et al., 2020). COVID has profoundly impacted all corners of the world, affecting various aspects of society, public health, economies, and education (Ciotti et al., 2020; Donohue & Miller, 2020; Kuhfeld et al., 2020). The first case of COVID-19 was reported in Wuhan, China, in December 2019. The virus spread rapidly, leading to a global outbreak in February and March 2020. Governments implemented various measures, including travel restrictions, lockdowns, and social distancing, to slow the spread of the virus (Brodeur et al., 2021). On March 11, 2020, the World Health Organization (WHO) declared COVID-19 a global pandemic. As the virus spread worldwide, health systems faced unprecedented challenges. Hospitals experienced overwhelming numbers of patients, and makeshift COVID units were established in large cities (Ciotti et al., 2020). Moreover, many countries implemented strict lockdowns to help slow the spread of the virus, which included shuttering schools (Donohue & Miller, 2020; Pokhrel & Chhetri, 2021).

COVID-19 impacted all levels of education, from preschool to post-secondary education, with nearly 200 countries shuttering schools between February and April 2020 (Nundy et al., 2021). The pandemic is responsible for the largest disruption in student education in recorded history, impacting around 1.6 billion children in over 190 countries (Hussein et al., 2020; UNICEF, 2020), making it the largest emergency educational response in history. With 72 percent of the world's student population transitioning from attending school in classrooms to learning to work on multiple online platforms from home, distance learning invoked even more significant challenges for schools to provide access to quality education for all children (Hussein

et al., 2020; UNESCO, 2020). The closure of schools and the implementation of distance learning have created significant social and academic impacts on students worldwide, particularly those from vulnerable populations (Aristovnik et al., 2020).

Previous pandemics have demonstrated a significant loss of life and a negative economic impact. The Black Death (1347-1352) resulted in deaths of more than 75 million, while the Spanish flu (1918-1920) accounted for more than 100 million deaths (Psacharopoulos et al., 2021). According to the World Health Organization, COVID-19 is responsible for approximately seven million deaths worldwide, with some estimates considerably higher. There are also concerns of underreporting due to lack of testing or misclassification. With more than 100 years of medical advances, it is staggering to see the major impact COVID-19 has had on global mortality rates. The economic impact is also critical, with estimates of low-income countries losing anywhere from 29 to 62 percent of their gross domestic product over the next 30 years (Psacharopoulos et al., 2021). The pandemic has provided significant declines in quality of life for all.

Impact on the SDGs

The COVID-19 pandemic is also profoundly impacting progress toward the UN's SDGs, as inequities were made more apparent at the onset of the pandemic. While the SDGs aimed at addressing global challenges and improving the well-being of people and the planet, most financial and humanitarian resources had to be diverted to mitigate the immediate impacts caused by the pandemic. Information continues to emerge on how widespread the impacts of COVID-19 were on the SDGs even four years after the pandemic started.

SDG3, good health and well-being, is directly challenged when it comes to analyzing global health. Resources were redirected to combat COVID-19, leading to disruptions in routine health services, vaccine programs, and the management of other health conditions. COVID-19 also exposed global weaknesses in health systems, with disparities in healthcare access and capacity becoming increasingly evident. As of January 21, 2024, WHO reported nearly seven million deaths globally due to COVID-19 (World Health Organization, 2024). While the number of reported deaths is devastating, researchers believe that there was an immense amount of underreporting that occurred worldwide (Millimet & Parmeter, 2022).

The underreporting of COVID-19 cases and deaths has been a significant issue throughout the pandemic, directly impacting public health responses and policy decisions (Rahmandad et al., 2021). One study estimates that cases were 54 times the actual reported number of infections in the United States during March 2020 (Lau et al., 2021). That same study identifies underreporting of 57-fold in Italy and 161-fold in Spain. Early in the pandemic, testing for COVID-19 infection was less readily available in many parts of the world due to a lack of test kits and personnel or fear associated with costs (Lau et al., 2021). In parts of the world, transmission surged due to adherence fatigue and lack of following local government procedures to stop the transmission of COVID-19 (Rahmandad et al., 2021). Post-pandemic, researchers have linked mortality rates with higher levels of transmission during the initial stages of the pandemic (Lau et al., 2021).

Within the mortality statistics, for example, there are alarming rates of vulnerable populations being more susceptible to death due to complications of COVID-19. Patients with preexisting conditions, such as diabetes, hypertension, cardiovascular disease and pulmonary

diseases, especially among minorities, are at an increased risk for clinically severe COVID-19 (Alcendor, 2020). Moreover, vulnerable populations may live within an area with limited access to fresh, and affordable nutritious food, also known as a food desert, contributing to underlying health conditions (Garcia & Weiss, 2020; Ridge, 2011). Combine these factors with overcrowded living spaces often leads to increased transmission rates or homelessness, challenges regarding proper hygiene and information about preventative measures, and you are left with incredible disparities (Alcendor, 2020; Magesh et al., 2017). Disparities include African American/Black populations having a one and half to three times greater likelihood of hospitalization than their white counterparts (Mackey et al., 2021).

Economic growth, SDG8, is another area severely impacted by the pandemic. Lockdowns, restrictions, and economic downturns resulted in job losses, especially in sectors like tourism, hospitality, and informal labor. Global economic growth experienced a significant decrease while government leaders attempted to stop the spread of COVID-19 by placing towns, cities, and countries in lockdowns. These lockdowns generated significant economic and social consequences, including job loss and changes in how people interacted in all aspects of life (Brodeur et al., 2021; Ciotti et al., 2020; Donohue & Miller, 2020; Kuhfeld et al., 2020). People in lower-income jobs were likelier to work in essential but higher-risk occupations where remote work was not feasible (Brodeur et al., 2021). Globally, one of every five jobs could have been performed at home, while in the United States, that number was closer to one of every three jobs being suitable for working from home. However, in low-income countries or for people who rely on more labor-specific jobs, that ratio plummeted to one of every 26 jobs (Cetrulo, et al., 2022).

Low socio-economic brackets often faced challenges in accessing quality healthcare as well. Limited access to testing, treatment, and preventative measures could have contributed to higher infection rates and more severe outcomes (Braveman & Gruskin, 2003; Brodeur et al., 2021; Mackey et al., 2021). Clearly, the pandemic has heightened inequalities, impacting low-income workers and vulnerable populations disproportionately.

It is also important to note that despite the efforts that communities have made toward reducing hunger and poverty, SDG1 and SDG2 are continuing to be challenged (Mukkaram, 2020). For example, the economic fallout and disruptions in food supply chains led to increased hunger and poverty, with some estimates anticipating a three percent decline in the global economy (Shula et al., 2021). COVID-19 also triggered an economic crisis that increased the number of people living in poverty for the first time in three decades (Shulla et al., 2021). Vulnerable populations faced difficulties in accessing food and necessities, with an increase in the number of people impacted by food insecurity from 2014 to 2018 (Fenner & Cernev, 2021). Shutdowns due to the pandemic have created gaps in supply chains due to limited production of goods and necessary household items, leading to increased costs that impact poor families (Fenner & Cernev, 2021; Joshi et al., 2021). Unfortunately, progress toward poverty reduction and the achievement of zero hunger has faced setbacks due to many economic challenges and the loss of livelihoods.

SDG17 designed to strengthen the means of implementing and revitalizing the global partnership for sustainable development, was almost entirely put on hold throughout the duration of the pandemic as countries focused on domestic priorities, and resources that could have been allocated to international development initiatives were redirected (Nerini et al., 2020).

Multilateral efforts faced challenges as countries prioritized their own needs over collaborative global goals (Nerini et al, 2020). For example, with the creation and distribution of vaccines, there was fear that countries would act in their own interest instead of addressing wider global interests (Fenner & Cernev, 2021). Recent reports from the UN state that the status of SDG17 is "threatened", there is still optimism as the global community is more united than ever to eradicate COVID-19 (Mukkaram, 2020).

SDG10, also experienced negative impacts due to the COVID-19 pandemic (Bailey et al., 2021; Brodeuer et al., 2021; Buheji et al., 2020; Centrullo et al., 2022; Van Deursen, 2020). With the targets of reducing income inequalities, promoting universal social, economic and political inclusion, and ensuring equal opportunities for all saw the largest increase in between-country inequality in three decades (United Nations, n.d.). Marginalized groups, including women, ethnic minorities, and those in informal economic sectors, were disproportionately affected (Naidoo & Fisher, 2020). Those who had hourly jobs in grocery stores, retail, warehouses, and manufacturing locations usually come from vulnerable populations and had no choice but to work, putting their health and safety in jeopardy (Shulla et al., 2021). COVID-19 has also made migrant workers, refugees, and minorities more vulnerable to discrimination and xenophobia (Nerini et al., 2020). Efforts to reduce this inequality faced setbacks as disparities widened across various dimensions, including income, education, and, as already mentioned, healthcare (Fenner & Cernev, 2021).

Negative impacts caused by the pandemic are being tallied years after the first initiations of lockdown. School closures have significantly changed schools and student achievement trajectories. SDG4, ensuring inclusive and equitable quality education and promoting lifelong

learning opportunities for all, has suffered as well (Fenner et al., 2021; Shulla et al., 2021; Wang et al., 2022). When schools began to shut down in an attempt to prevent the spread of the virus, education was disrupted for millions of students worldwide by eliminating traditional learning in classrooms. School closures were particularly impactful for students from vulnerable populations (Clemente et al., 2022; Fenner & Cernev, 2021). As many districts and schools pivoted to online learning, a digital divide widened, exacerbating inequalities in access to quality education for all (Garcia & Weiss, 2020). Teachers struggled to transition to online classrooms and to achieve the same level of success that they had experienced in their face-to-face setting (Bond, 2021; Crompton et al., 2021; Doll et al., 2021; Tarricone et al., 2021). As schools began to close due to lockdown and shelter orders, educational systems were forced to adapt and evolve; some schools, districts, and countries were more prepared for this transition than others (Crompton et al., 2021; Donnelly & Patrinos, 2021; Eroglu & Senol, 2021; Pokhrel & Chhetri, 2021; Reimers, 2022). Many schools shifted to remote learning when physical classrooms were closed, and this disruption to learning could have long-term consequences, particularly for students in vulnerable populations (Bailey et al., 2021; Basar er al., 2021; Donnelly & Patrinos, 2021; Engzell et al., 2021; Pokhrel & Chhetri, 2021).

Emergency Education During the COVID-19 Pandemic

While most emergency education situations are focused on a specific country or region, the COVID-19 pandemic became a worldwide emergency, impacting 94% of students globally (UNESCO, 2020) and 99% of those in low and lower-middle-income countries (United Nations, 2020). Over 1.5 billion students worldwide experienced school closures at the height of the pandemic, affecting learners at every level (United Nations, 2020; UNESCO, 2020). The abrupt

shift to remote learning posed challenges in terms of adapting to new technologies, maintaining engagement, and ensuring equitable access to educational resources.

When it became clear that schools would not resume, there was a rapid and widespread shift to online platforms, using video conferencing and other digital tools for classroom instruction. This abrupt change in learning modalities emphasized digital divides between students. The digital divide refers to some children having access to technology and others lacking those resources (Garcia & Weiss, 2020). Twenty years ago, Fairlie (2004) determined that education, income, and occupation were all critical elements in determining whether computer ownership with internet access was correlated. Fairlie's study determined that there is up to a seven percent gap between whites and Hispanics in the digital divide. Despite the warnings 20 years ago, the digital divide remains relevant today, with studies finding that low-socioeconomic families are fifteen times less likely than their financially stable peers to have access to a computer with internet access at home (Lythereatis et al., 2022). Studies have identified that 48% of districts with the largest population of low-income students planned to distribute devices, while 52% of districts serving wealthier students did the same (Morgan, 2022). School shutdowns and the digital divide created barriers and amplified these disparities at a time when all students were expected to gain access to the curriculum online (Carcia & Weiss, 2020; Reimers, 2022). The disparities in access to technology led to inequities in educational outcomes, with some students thriving in remote settings while others struggled.

Teachers adapted throughout the pandemic with varying levels of success based on their level of digital literacy. Educators face challenges adapting to online teaching, especially those lacking digital literacy skills and resources (Bailey et al., 2021; Crompton et al., 2021).

Moreover, many teachers did not have the proper training to teach online (Crompton et al., 2021), nor was it possible, for example, to have a kindergarten student spend their day attempting to upload assignments into a digital classroom. Classrooms already experienced disparities, but it quickly became clear that creating an inclusive educational setting in a digital world was extremely challenging (Carcia & Weiss, 2020; Reimers, 2022). Teachers had to explore new methods and tools to capture and maintain student attention, and email was found to be the most commonplace tool in a study of education in the US and the UK (Greenhow et al., 2021). Greenhow et al. explained that there were significant differences in instruction between the two countries, with the UK using 64% prerecorded instructional videos and the US presenting live instruction 58% of the time (2021). The absence of face-to-face instruction also made it difficult to gauge students understanding and to address questions in real-time. Designing fair and effective assessments in an online format required creativity and lacked the same ability for administrative observation that face-to-face instruction allows (Basar et al., 2021). The shift to online instruction and the additional planning for a brand-new setting led to increased workloads for many educators (Brodeur et al., 2021). Teachers, especially those who taught in hybrid settings, faced burnout due to the demands of managing remote classrooms, addressing the needs of individual students, and balancing their own personal challenges (Kraft & Simon, 2020). One study has identified that burnout from job-related stress was a moderate to major concern for 77% of teachers in the US (Zamarro et al., 2022). That same study found that teachers 55 years and older were less likely to leave, based on their proximity to retirement; however, a quarter of teachers with 21 years of experience or less considered leaving their role because of Covid (Zamarro et al., 2022). Doll and colleagues also suggested that teachers move through their own hierarchy of needs concerning teaching online (2021). While many educators

prided themselves on their ability to reach individuals with differentiated instruction, tailoring lessons to meet the diverse learning needs of students in an online setting proved taxing.

Students also faced demands in shifting to online classrooms. Prolonged closures and disruptions to regular classroom instruction resulted in significant learning loss. The impact was particularly significant for students from vulnerable populations at the start of the pandemic; a little over 40% of parents with lower incomes said their child would utilize a cell phone to complete schoolwork, while only 10% of upper-income families responded with the same comment (Morgan, 2022). Existing achievement gaps were exacerbated, as students with fewer resources faced challenges in keeping up with coursework and accessing additional support because instruction was described as "dull" (Morgan, 2022) as students self-reported spending less time interacting with lessons while at home than in a traditional classroom setting (Yates et al., 2021). In some situations, these students also struggled to access the curriculum due to a spotty internet connection or multiple siblings trying to use one device (Garcia & Weiss, 2020; Morgan, 2022). Students with disabilities, English language learners, and those from economically disadvantaged backgrounds faced even greater challenges (Bailey et al., 2021; Dorn et al., 2020; Morgan, 2022; Sugarmen, 2021). When schools closed, it meant the loss of essential support services, including school meals, mental health services, and special education.

While academics were impacted significantly by the COVID-19 shutdowns, many difficulties also affected students at all levels. School closures created social isolation for children. Lockdowns, social distancing, and restrictions on gatherings reduced in-person social interactions, contributing to feelings of isolation and loneliness (Clemente-Suárez et al., 2022; Doll et al., 2021). For example, a study in Turkey reported that nearly 40% of students identified

increased anxiety levels due to school closures (Kilinçel et al., 2021). Moreover, parents reported that nearly 80% of students experienced fear and anxiety about contracting COVID and half of parents reported their child experienced weight gains during lockdowns (Adibelli & Sümen, 2020). Shifting to online learning also disrupted academic routines and students' sense of stability and predictability. Transitioning to remote learning presented technical problems, lack of engagement, and difficulties adapting to new instructional methods. In a 2020 study, researchers examined the psychological impact of COVID-19 on nearly 600 people in China aged 14 to 35. They determined that 40% of respondents reported psychological problems, and 14% exhibited symptoms of PTSD (Liang et al., 2020). Low-income families also faced economic challenges due to job loss, reduced income, and financial instability (Buheji et al., 2020; Garcia & Weiss, 2020). The combined pressure of the pandemic put many children in volatile households where stress and anxiety became a part of everyday life and where major U.S. cities reported a 39% increase in domestic violence occurrences during the initial shutdown (Miller et al., 2022). Moreover, some children also lost loved ones due to COVID-19, contributing to grief and emotional distress (Prime et al., 2020). In normal times, schools would provide critical support systems for these types of situations; however, with schools closed, it meant that students had limited access to on-site counseling services and mental health support even though 43% of students identified that they experienced depression related to the pandemic (Garcia & Weiss, 2020; Morgan 2022). Addressing the social and emotional needs of students during and after the pandemic has required a comprehensive approach involving schools, mental health professionals, families, and government.

Mitigating Educational Challenges Caused by the COVID-19 Pandemic

School districts quickly implemented various measures to support instructional staff during the COVID-19 pandemic, recognizing their unique challenges in adapting to new instructional models, technology, and the changing educational landscape. Professional development was necessary to support instructional staff (Crompton et al., 2021; Dorn et al., 2020; Doucet et al., 2020; Kraft & Simon, 2020; Pokhrel & Chhetri, 2021. However, training teachers to provide virtual instruction was not readily available, and many educators had minimal experience in teaching online (Eroglu & Senol, 2021; Kraft & Simon, 2020). To eliminate teacher barriers, some districts provided professional development for staff members so that they might help themselves navigate online platforms, video conferencing tools, and other digital resources (Doucet et al., 2021; Morgan, 2022; Pokhrel & Chhetri, 2021). In most cases, teachers were also in lockdown at home, meaning they would also be provided devices, including laptops, dual monitors, and webcams, to help stream their online lessons (Reimers, 2022; Reimers & Schleicher, 2020). Teachers turned their living rooms and spare bedrooms into classrooms for their students when schools provided flexible working options to maintain the health and safety of their staff. This was especially challenging for teachers as less than half of the respondents in one U.S. study reported that they could work privately in a room other than their bedroom (Cetrulo et al., 2022). In many cases, teachers' mental health had become a priority and concern. Peer support networks were established to help balance the ever-changing world, allowing educators to share experiences, exchange ideas, and provide mutual support (Beaunoyer et al., 2020; Doucet et al., 2020). These supportive measures were designed to foster resilience, adaptability, and a sense of community among educators during an unprecedented and challenging period in education.

To provide education throughout the pandemic, schools had to be creative to eliminate barriers. Many schools distributed devices to their students, such as laptops, tablets, and Chromebooks, so their students could access digital classrooms while prioritizing families receiving free and reduced lunch benefits (Garcia & Weiss, 2021; Greenhow et al., 2021). In addition to devices, many districts partnered with internet service providers to provide mobile hotspots to families in need, giving students reliable internet access at home. One study identified that of 242 districts surveyed, 77% distributed Chromebooks and 51% distributed internet hot spots (Dorn et al., 2020). Some districts also collaborated with local businesses to provide free public Wi-Fi access points, enabling students to connect to school for free (Bond, 2021; Katz et al., 2021). Districts also invested resources in online learning platforms, educational software, and digital resources at no cost to their staff or at a subsidized rate for families with financial constraints. If devices were still a barrier, many schools prepared learning packets and sent home textbooks, worksheets, and other instructional materials, which allowed students to engage in their studies offline (Garcia & Weiss, 2020; Kraft & Simon, 2020; Morgan, 2022; Tarricone et al., 2021).

Assistance to students during the pandemic extended beyond academics. Recognizing vulnerable populations' multifaceted challenges, schools collaborated with community organizations and implemented initiatives to address broader needs. Many schools continued providing free and reduced lunches during remote learning, though 33% of households with children, including 40% of Black and Hispanic families, remained food insecure during the height of the pandemic (Kinsey et al., 2020). In some cases, the meal services were even expanded when families could pick up meals for students in school drive-thru lines (Jowell et al., 2023). Schools also collaborated with local charities and businesses to expand their food pantries

as an additional resource for families facing food insecurity (Jowell et al., 2023). Mental health services, just like the curriculum, were also offered to students through virtual visits in online meeting programs or through telephone conversations. When possible, many schools also conducted home visits, virtually or in person, to connect with families directly, assess their needs, and offer personalized support (Morgan, 2022). When returning to school was safe, many schools offered flexible options to accommodate families' needs (Bailey et al., 2021). These efforts aimed to address the holistic needs of families, recognizing that factors beyond academics significantly impacted a child's ability to learn and thrive.

One indication that learning loss occurred during the pandemic was the Nation's Report Card, compiled from the National Assessment of Educational Progress (NAEP) assessment. NAEP was a standardized assessment administered to students in the United States to measure academic performance across multiple subjects, including reading and math. NAEP aimed to provide national benchmarks, state-to-state comparisons, long-term trends, in-depth assessments, and accountability and policy evaluation. The assessments also provided informative data about equity and achievement gaps and insights into curriculum and instruction development for key educational planning and reform stakeholders (National Center for Education Statistics, 2024).

The most recent data from NAEP identified trends since the onset of the pandemic. Average scores for both reading and math were significantly down for nine- and thirteen-year-old students. Alarmingly, it was not just the average score that has dropped. Students consistently scored lower in every percentile metric tracked by the NAEP assessment. For instance, long-term trends in reading and math identified lower scores for students in the 10^{th}, 25^{th}, 50^{th}, 75^{th}, and

90th percentiles. The silver lining was that there had been no statistical significance since the inception of NAEP in 1971 (National Center for Education Statistics, 2024).

CHAPTER THREE: METHODOLOGY

Introduction

This study was designed to understand the relationship between vulnerable populations and their academic progression of scale scores on the FSA during the period of the COVID-19 pandemic. Academic progression is understood to be students attaining a minimum, basic set of skills to achieve a level of proficiency tied to scale scores on the annual state assessment (Ehlert et al., 2016) A single cohort of students will be examined based on inclusion in the Grade 3 2018-19 Florida Standards Assessment (FSA), which they took for the first time. The goal was to determine the relationship between prior mathematics and reading proficiencies as measured by the English Language Arts (ELA) FSA in Grade 3, the Mathematics FSA for students in Grade 3, and their scores in the subsequent Grade 5 and 6 assessments. It is important to note that the administration of the FSA was canceled in 2020, when this cohort was in grade 4, due to school closures and the transition to remote learning during the COVID-19 pandemic.

In addition, the study aimed to determine if the disruption in standard academic procedures caused by the COVID-19 pandemic had a disproportionate impact on students from Black or low-SES backgrounds. Specifically, the study analyzed how the passage of time (the independent variable) affected academic success, as measured by the FSA score (dependent variable). To explore this relationship, the study considered race and SES as moderators, assessing whether the impact of time on academic success varied based on a student's racial background or SES. By including these moderators, the study sought to uncover any differential effects of the pandemic on these groups, providing a more nuanced understanding of how external disruptions can influence outcomes across different demographics.

The researcher designed this analysis to examine the relationship between achievement measured by the 2018 FSA through the 2022 FSA administration. According to the FLDOE, students who scored a level three or higher are considered proficient. The assessment also measures annual growth by a designated scale score increase. The 2019, Grade 3 FSA cohort, was chosen because it was the first year for students being assessed using the FSA, and thus provides a baseline for student proficiency before the 2020 COVID shutdown. This cohort did not participate in the grade four administration of the assessment in the Spring of 2020 because of the transition to remote education during lockdowns.

Sample & Site

The sample for this study consisted of all Grade 3 students within the district who participated in the FSA during the 2019 school year, and who remained enrolled through the 2022 school year. The sample was drawn from a large, suburban school district in Florida. To ensure consistency, the sample for this study only included students who participated in the FSA for English Language Arts and Mathematics in 2019, 2021, and 2022. The sample for this study included FSA scale scores reported by gender, race, ethnicity, English Language Learner (ELL) status, and disability status. In the initial data pull, 5,158 students were included. Students who were either absent, opted out of testing, or were not residing in Florida during the administration of all three assessment years were excluded. The final sample included 3,376 students with complete data.

The data sample included in this study contained detailed information regarding student gender, federal race (Asian, Black, Caucasian, etc) ethnicity (American Indian, Hispanic, Pacific Islander, etc.), ELL status (newcomers to the United States who speak another language at

home), socioeconomic status (SES) and/or Students with Disabilities (SWD) status. Cimmaron Public School District provided the primary exceptionality for all students with disabilities, and those with any status except gifted were coded as SWD. The code of LY (receiving services) and LF (monitored by ELL teachers) were utilized to categorize students as ELL for this study. The free or reduced-price lunch (FRL) enrollment was used as an approximation to determine socioeconomic status.

Of the 3,376 students in the final sample, demographics were disaggregated by gender as 51.8% male and 48.2% female, and by race as 48.5% Caucasian students, 27% Hispanic students, 13.2% Black students, 6.8% Asian students, and 4.6% of students identified as other. Within the sample, 9.3% were designated as ELL, and 16.2% were classified as SWD. Fifty percent of students were enrolled in the free or reduced lunch program. A summary of the demographic characteristics of the sample can be found in Table 2.

Table 4 Demographic Characteristics of the Student Sample (N = 3,376)

Characteristic	*f*	%
Gender		
Male	175*0*	51.8%
Female	1626	48.2%
Federal Race		
Caucasian	1637	48.5%
Black	446	13.2%
Asian	229	6.8%
Other	154	4.6%
Hispanic	910	27%
English Language Learner (ELL)		
Yes	314	9.3%
No	3062	90.7%
Student with Disabilities (SWD)		
Yes	548	16.2%
No	2828	83.8%
Socioeconomic Status (SES)		
Free & Reduced Lunch	1689	50%
Not identified for FRL	1687	50%

Note. Demographic information provided by Cimmaron County Public Schools

This study was conducted following protocols and procedures outlined by the University of Central Florida (UCF) Institutional Review Board (IRB), which required training in research ethics by the Collaborative Institutional Training Initiative (CITI). A committee of faculty members reviewed and approved the proposed study on August 18, 2018. The University of Central Florida IRB approved the study on May 22, 2024; a copy of the approval letter is located in Appendix A.

The researcher submitted an additional application to the Cimmaron Public School District (CPSD) Deputy Superintendent for research approval. The application consisted of a

research request form, an abstract of the research, evidence of a review of the relevant literature and previous research, instruments to be used, and procedures to ensure the confidentiality of subjects. CCPS approved the research on August 5, 2023, and the researcher received the data to complete the study in full on March 17, 2024. A copy of the CCPS approval notification is located in the Appendix B.

Instrumentation

The Florida Standards Assessment (FSA) is a state-wide standardized testing initiative to measure students' academic achievement in English Language Arts (ELA), Mathematics, and end-of-course assessments in several high school subjects. The assessment aligns with Florida State Standards, which outline the educational goals and curriculum from kindergarten through 12th grade. Students participate in various assessments on the core curriculum in 3rd through 10th grade. Performance on the Florida state-wide assessments is reported in five achievement levels, which correlate to a scale score and achievement level, as reported in Table 3. Students must score a Level 3 or higher to be considered proficient and to be marked as passing.

Table 5 Grade-Level Assessment Scale Scores for Achievement Levels

Assessment		Level 1	Level 2	Level 3	Level 4	Level 5
FSA English Language Arts Scale Scores (240 – 412) for Each Achievement Level	Grade 3	240-284	285-299	300-314	315-329	330-360
	Grade 4	251-296	297-310	311-324	325-339	340-372
	Grade 5	257-303	304-320	321-335	336-351	352-385
	Grade 6	259-308	309-325	326-338	339-355	356-391
FSA Mathematics Scale Scores (240 – 393) for Each Achievement Level	Grade 3	240-284	285-296	297-310	311-326	327-360
	Grade 4	251-298	299-309	310-324	325-339	340-376
	Grade 5	256-305	306-319	320-333	334-349	350-388
	Grade 6	260-309	310-324	325-338	339-355	356-390

Florida Statewide Assessment test items are classified in cognitive complexity based on Webb's Depth of Knowledge (DOK). There are three levels on the FSA assessments, ranging from low (Level 1), moderate (Level 2), and high (Level 3) complexity. DOK Level 1 questions require students to recall information, locate details in a text, or solve single-step problems. Level 2 can ask students to use summarization skills or identify information on a chart or graph when solving a problem. A Level 3 problem requires more analysis by the student, having the test taker determine cause-and-effect relationships or justify a solution. Test items with higher complexity are worth more than a low-level complexity problem. The FSA uses a variety of different levels of questions across the assessment, as outlined in Table 4.

Table 6 FSA Percentage of Points by Depth of Knowledge Level

Grade/Subject	DOK Level 1	DOK Level 2	DOK Level 3
Grades 3-10 ELA	10%-20%	60%-80%	10%-20%
Grades 3-8 Mathematics	10%-20%	60%-80%	10%-20%

English Language Arts (ELA)

The ELA reading portion of FSA is based on the standards found in the Reading, Literature, and Language strands of the English Language Arts Florida Standards. Students must read six to eight passages and answer sets of six to eleven questions based on the respective passage. Both informational and literary passages are included in the ELA portion of the assessment. As students increase their grade level, the passage length increases as well.

Table 7 Approximate Word Count Range for Text or Text Set

Grade	Range of Number of Words
3	100-700
4	100-900
5	200-1000
6	200-1100

Grades 3 through 6 FSA include four reporting categories within the assessment. The four categories on the ELA assessments are (a) Key Ideas and Details, (b) Craft and Structure, (c) Integration of Knowledge and Ideas, and (d) Language and Editing. The percentage of points determining the scale score varies on each grade level assessment.

Table 8 FSA ELA Reading Percentage of Points by Reporting Category

Grades	Key Ideas & Details	Craft & Structure	Integration of Knowledge & Ideas	Language & Editing
3-6	15%-25%	25%-35%	20%-30%	15%-25%

Mathematics

Like the ELA portion of the assessment, mathematics is broken into multiple broad reporting categories; however, these categories vary by grade level. Third graders are assessed on three categories, including (a) Operations, Algebraic Thinking, and Numbers in Base Ten, (b) Numbers and Operations-Fractions, and (c) Measurement, Data, and Geometry. Fourth-grade students are assessed on four broad categories: (a) Operations and Algebraic Thinking, (b) Numbers and Operations in Base Ten, (c) Numbers and Operations-Fractions, and (d) Measurement, Data, and Geometry. Fifth-grade students respond to questions in three categories, including (a) Operations, Algebraic Thinking, (b) Numbers and Operations in Base Ten, and (c) Measurement, Data, and Geometry. In sixth grade, students are introduced to new topics, which include (a) Ratio and Proportional Relationships, (b) Expressions and Equations, (c) Geometry, (d) Statistics and Probability, and (e) The Number System. The weight of each category varies by grade level, as illustrated in Table 7, Table 8, Table 9, and Table 10.

Table 9 FSA Mathematics Percentage of Points by Reporting Category Grade 3

Grade Level	Operations, Algebraic Thinking, and Numbers in Base Ten	Numbers and Operations-Fractions	Measurement, Data, and Geometry
3	48%	17%	35%

Note: Adapted from (FLDOE, 2021)

Table 10 FSA Mathematics Percentage of Points by Reporting Category Grade 4

Grade Level	Operations and Algebraic Thinking,	Numbers and Operations in Base Ten	Numbers and Operations-Fractions	Measurement, Data, and Geometry
4	21%	21%	25%	33%

Note: Adapted from (FLDOE, 2021)

Table 11 FSA Mathematics Percentage of Points by Reporting Category Grade 5

Grade Level	Operations, Algebraic Thinking, and Fractions	Numbers and Operations in Base Ten	Measurement, Data, and Geometry
5	39%	28%	33%

Note: Adapted from (FLDOE, 2021)

Table 12 FSA Mathematics Percentage of Points by Reporting Category Grade 6

Grade Level	Ration and Proportional Relationships	Expressions and Equations	Geometry	Statistics & Probability	The Number System
6	15%	30%	15%	19%	21%

Note: Adapted from (FLDOE, 2021)

Reliability

The FSA is considered reliable through internal consistency and marginal reliability tests, as reported by the Florida Department of Education (2021). FSA, ELA, and Mathematics assessments included mixed items, such as multiple-choice, short-response, and extended-response questions. Internal consistency was measured using Cronbach's alpha, stratified alpha, and Feldt-Raju (FLDOE, 2021).

Cronbach's alpha is a widely used static measuring how well questions asses a single construct or dimension (Bonett & Wright, 2015). Cronbach's alpha is a measurement of items within a questionnaire or scale often used in education. This statistic provides a single index of internal consistency reliability by quantifying the extent to which items in the measure are correlated with one another (Cho, 2016). A high Cronbach alpha level between 0.70 and 0.95 suggests that the test items in the measure are strongly related and consistently measure the same underlying construct (Tavakol & Dennick, 2011), meaning a high reliability.

Stratified alpha is an estimated generalizability coefficient from generalizability theory (Cronbach et al., 1963). Unlike traditional alpha coefficients, stratified alpha allows researchers to assess reliability for separate subgroups. In the case of the FSA, this could be especially helpful when comparing vocabulary and reading comprehension, both subgroups within the ELA assessment (Webb et al., 2006). Stratified alpha is also particularly helpful when the homogeneity assumption of traditional alpha is violated, as it provides insight into whether reliability differs across diverse subpopulations (Tavakol & Dennick, 2011).

The Feldt-Raju model is beneficial when determining reliability for standardized assessments, especially when the assessment involves repeated measurements or multiple testing conditions. In the case of FSA, the reliability estimates of Feldt-Raju are presented by grade and subject as well as by demographic subgroups (Cho, 2016). By considering the potential correlations between repeated measurements, the Feldt-Raju method provides a more accurate estimate of reliability compared to traditional measures like Cronbach's alpha, especially in the context of longitudinal or repeated-measures design (Shu & Schwarz, 2014; Webb et al., 2016).

FSA has strong internal consistency based on these criteria (Tables 11 and 12).

Table 13 Reliability Coefficients (Mathematics)

Grade	Cronbach Alpha	Stratified Alpha	Feldt-Raju
3	0.95	0.95	0.94
4	0.95	0.95	0.95
5	0.94	0.95	0.94
6	0.94	0.94	0.92

Table 14 Reliability Coefficients (ELA)

Grade	Cronbach Alpha	Stratified Alpha	Feldt-Raju
3	0.92	0.92	0.92
4	0.93	0.93	0.92
5	0.93	0.93	0.92
6	0.92	0.92	0.91

Marginal Reliability

The FLDOE describes marginal reliability as the overall reliability of the test based on the average conditional standard errors, estimated at different points on the achievement scale, for all students (Florida Department of Education, 2021, p. 11). In essence, marginal reliability evaluates how well each item contributes to the overall measurement of the assessment, which is significant when the assumption of tau-equivalence is violated. The FSA reports a solid internal consistency (Table 13) across all relevant subject areas.

Table 15 Marginal Reliability: Florida Standards Assessment

Course	Grade	Marginal Reliability
Mathematics	3	0.92
Mathematics	4	0.93
Mathematics	5	0.92
Mathematics	6	0.88
ELA	3	0.89
ELA	4	0.91
ELA	5	0.91
ELA	6	0.89

Note: Adapted from (FLDOE, 2021 p. 13)

Validity

The Florida Standards Assessments are standards-based, summative tests to determine individual student proficiency in state-mandated instructional standards. The assessment is designed to evaluate instruction and student learning and to determine if the goals of the FLDOE are being achieved at a local and state-wide level (FLDOE, 2021, p.3). The assessments have been independently validated by a third-party alignment study conducted by Alpine Testing Solutions (ATS). ATS utilized the *Standards for Educational and Psychological Testing* (AERA, APA, & NCME, 2014; *Test Standards*), as well as other critical sources, such as *Educational Measurement,* 4th ed. (Brennan, 2006) and the *Handbook for Test Development* (Downing & Haladyna, 2006), which served as comparison guidelines (Verges et al., 2015). During the construction of the assessment, test blueprints were utilized to ensure that priority standards were addressed appropriately and met all test item specifications (FLDOE, 2021). Specifications included the number of test items for each reporting category, depth of knowledge levels, and the presence of each type of operational item to ensure valid measurement of student knowledge of state standards (FLDOE, 2021).

Validity for extrapolation requires evidence that the universal score applies to a broader scope of student assessment scores (FLDOE, 2021). Tables 14 (Mathematics) and 15 (ELA) present the observed correlation matrix of reporting category raw scores for each subject.

Table 16 Observed Correlation Matrix Among Reporting Categories (Mathematics)

Grade	Reporting Category	Number of Items	Cat 1	Cat 2	Cat 3	Cat 4	Cat 5
3	Operations, Algebraic Thinking, and Numbers in Base Ten (Cat1)	26	1.00				
	Numbers and Operations – Fractions (Cat2)	10	0.76	1.00			
	Measurement, Data, and Geometry (Cat3)	18	0.85	0.77	1.00		
4	Operations and Algebraic Thinking (Cat1)	11	1.00				
	Numbers and Operations in Base Ten (Cat2)	11	0.83	1.00			
	Numbers and Operations – Fractions (Cat3)	14	0.80	0.81	1.00		
	Measurement, Data, and Geometry (Cat3)	18	0.81	0.81	0.82	1.00	
5	Operations, Algebraic Thinking, and Fractions (Cat1)	21	1.00				
	Numbers and Operations in Base Ten (Cat2)	15	0.84	1.00			
	Measurement, Data, and Geometry (Cat3)	18	0.82	0.82	1.00		
6	Ratio and Proportional Relationships (Cat1)	8	1.00				
	Expressions and Equations (Cat2)	17	0.76	1.00			
	Geometry (Cat3)	8	0.67	0.74	1.00		
	Statistics and Probability (Cat4)	11	0.69	0.75	0.66	1.00	
	The Number System (Cat5)	12	0.72	0.80	0.71	0.70	1.00

Note: Adapted from (FLDOE, 2021 p. 77)

Table 17 Observed Correlation Matrix Among Reporting Categories (ELA)

Grade	Reporting Category	Number of Items	Cat 1	Cat 2	Cat 3	Cat 4	Cat 5
3	Key Idea and Details (Cat1)	13	1.00				
	Craft and Structure (Cat2)	17	0.81	1.00			
	Integration of Knowledge and Ideas (Cat3)	12	0.77	0.79	1.00		
	Language and Editing Task (Cat4)	8	0.60	0.62	0.59	1.00	
4	Key Idea and Details (Cat1)	11	1.00				
	Craft and Structure (Cat2)	11	0.83	1.00			
	Integration of Knowledge and Ideas (Cat3)	14	0.80	0.81	1.00		
	Language and Editing Task (Cat4)	18	0.81	0.81	0.82	1.00	
	Text-Based Writing (Cat5)	3	0.58	0.56	0.56	0.49	1.00
5	Key Idea and Details (Cat1)	18	1.00				
	Craft and Structure (Cat2)	14	0.78	1.00			
	Integration of Knowledge and Ideas (Cat3)	11	0.76	0.71	1.00		
	Language and Editing Task (Cat4)	7	0.69	0.65	0.62	1.00	
	Text-Based Writing (Cat5)	3	0.59	0.56	0.53	0.54	1.00
6	Key Idea and Details (Cat1)	13	1.00				
	Craft and Structure (Cat2)	19	0.79	1.00			
	Integration of Knowledge and Ideas (Cat3)	10	0.71	0.70	1.00		
	Language and Editing Task (Cat4)	10	0.61	0.61	0.61	1.00	
	Text-Based Writing (Cat5)	3	0.50	0.50	0.46	0.49	1.00

Note: Adapted from (FLDOE, 2021 p. 78)

The final step in determining the validity of test items was the third-party examination completed by Alpine Testing Solutions (ATS). ATS evaluated the alignment of items with the created blueprints provided by FLDOE to determine if the Florida standards for Mathematics and

Language Arts correlated. The study determined that the tests were fully aligned and that the items represented the Florida Standards (Verges et al., 2015).

Data Collection

The FSA Mathematics and ELA were administered annually in 2019, 2021, and 2022. There was no administration of FSA in the 2020 school year due to school closures and the impact of COVID-19. Data files were obtained from Cimmaron Public School District (CPSD) containing the assessment and demographic data for the single cohort of students in Grade 3 during the 2018-2019 school year. The data requested and received from the Assessment and Accountability Department of CPSD consisted of (a) FSA Mathematics scale scores and achievement levels and (b) FSA ELA scale scores and achievement levels. In addition to score data, student demographic variables were included for gender, federal race, free and reduced lunch status, Exceptional Education status, and English Language Learner status.

University Protocol

The study was conducted under the protocol and guidelines set forth by the University of Central Florida (UCF) Institutional Review Board (IRB), which required training in research ethics by the Collaborative Institutional Training Initiative (CITI). On August 18, 2018, a University of Central Florida faculty member committee reviewed and approved the proposed study. The University of Central Florida IRB approved the study on May 22, 2024. A copy of the approval letter can be found in the Appendix A.

School District Protocol

An application was submitted to CPSD's Deputy Superintendent to conduct research using school district data. The application consisted of a district request form, research abstract, evidence of a review of the relevant literature, instruments to be utilized, and procedures to

ensure the confidentiality of subjects would be maintained. The CPSD approved the research on August 5, 2023, and the data to complete the research was received in full on March 17, 2024. A copy of the approval letter from the CPSD can be found in the Appendix B.

Research Design & Analysis

Quantitative methods were utilized to analyze the relationships described in the research questions.

The following research questions guided the study.

Research Question 1

To what extent does being black moderate the relationship between scale scores in (a) ELA or (b) Mathematics on the Florida Standards Assessment during the 2021-2022 school year compared to the 2018-2019 school year?

$H_{1\text{-}a}$ – There is a statistical difference in the growth demonstrated on the FSA ELA scale scores between black students and their peers on the Florida Standards Assessment.

$H_{1\text{-}b}$ – There is a statistical difference in the growth demonstrated on the FSA ELA scale scores between black students and their peers on the Florida Standards Assessment.

- Variables
    - Moderator: Race (African American, Asian, Caucasian, Hispanic, Other)
    - Independent: Year of assessment
    - Dependent: FSA ELA achievement level, FSA Mathematics achievement level

- Statistical Tool: Two-way Analysis of Variance (ANOVA)

Research Question 2

To what extent does being a low-SES student moderate the relationship between scale scores in (a) ELA or (b) Mathematics on the Florida Standards Assessment during the 2021-2022 school year compared to the 2018-2019 school year?

$H_{2\text{-}a}$ – There is a statistical difference in the growth demonstrated on the FSA ELA scale scores between low-SES students and their financially stable peers on the Florida Standards Assessment.

$H_{2\text{-}b}$ – There is a statistical difference in the growth demonstrated on the FSA ELA scale scores between low-SES students and their financially stable peers on the Florida Standards Assessment.

- Variables
  - Moderator: Economic status (Enrolled in Free/Reduced Lunch)
  - Independent: Year of assessment
  - Dependent: FSA ELA achievement level, FSA Mathematics achievement level
  - Statistical Tool: Two-way Analysis of Variance (ANOVA)

Two separate two-way ANOVA were utilized to address each research question to determine if a statistically significant difference exists in student outcomes. To address student success across grade levels, the researcher determined the necessary scale score increase to

demonstrate growth. For example, to determine student progression, the researcher analyzed and compared student's change in scale score on the FSA.

According to Ståhl & Wold (1989), an Analysis of Variance (ANOVA) is widely utilized when identifying interaction effects between two independent variables, which is crucial for understanding complex relationships within the data set. An ANOVA is preferable to multiple *t*-tests to determine differences between more than two groups. The advantage an ANOVA provides is that it will hold the Type 1 error level from a *t*-test constant while simultaneously calculating the statistical difference between all groups (Kim, H., 2014). A two-way ANOVA is a powerful statistical tool for examining the effects of two independent variables on dependent variables and understanding their interplay.

The use of race and economic status as moderator variables in this study indicated that two-way ANOVAs were appropriate to determine if a statistically significant variance existed in group means for student growth or regression during the COVID-19 pandemic. Race and economic status were considered independently in two two-way ANOVAs for each research question.

Summary

Chapter Three outlined the methods used to address the research questions. The sample for this study consisted of 3,376 students in a cohort monitored from third through sixth grade within the Cimmaron Public School District. The data were collected from the Florida Standards Assessment English Language Arts (ELA) and the Florida Standards Assessment Mathematics, which are both valid and reliable tests. The study contains two research questions, which allowed the researcher to utilize two separate, two-way analyses of variance to address the research

questions. The relationship between race and achievement and socioeconomic status and achievement in ELA and mathematics will be presented in Chapter Four.

CHAPTER FOUR: RESULTS AND ANALYSIS

This study aimed to identify the relationship between race, socioeconomic status (SES), and academic success on the Florida Standards Assessment (FSA) English Language Arts (ELA) and Mathematics assessment after the COVID-19 pandemic. The selection of students for the study was based on the ability to identify a score for each year between 2018 and 2022, excluding 2020. Chapter four contains the results of the quantitative data analysis that addressed the research questions used to guide the study. Results are organized by research question, with narratives and tables used to answer each research question. The analysis was broken into four segments (Table 19).

Table 18 Variables Used

	Independent Variable	Moderator Variable		Dependent Variable
1.	Year	Race	for	ELA
2.	Year	Race	for	Mathematics
3.	Year	SES	for	ELA
4.	Year	SES	for	Mathematics

Missing Data and Data Cleaning

The data provided was cleaned by eliminating all students who did not have scores on the 2019, 2021, and 2022 FSA assessments. The original data file included 5,159 students, of whom 3,376 met the criteria with scores for all three FSA reports. The original data file included 765 Black students (14.82%). Once students with missing scores were removed, 446 Black students (13.21%) remained.

Research Questions

Question 1 - Race

To what extent does being black moderate the relationship between scale scores in (a) ELA or (b) Mathematics on the Florida Standards Assessment during the 2021-2022 school year compared to the 2018-2019 school year?

$H_{1\text{-}a}$ – There is a statistical difference in the growth demonstrated on the FSA ELA scale scores between black students and their peers on the Florida Standards Assessment.

$H_{1\text{-}b}$ – There is a statistical difference in the growth demonstrated on the FSA ELA scale scores between black students and their peers on the Florida Standards Assessment.

Question 2 - SES

To what extent does being a low SES student moderate the relationship between scale scores in ELA or Mathematics on the Florida Standards Assessment during the 2021-2022 school year compared to the 2018-2019 school year?

$H_{2\text{-}0}$ – There is a statistical difference in the growth demonstrated on the FSA ELA or FSA Mathematics scale scores between low SES students and their peers on the Florida Standards Assessment.

Results: Question 1_a

FSA Results for Black Compared to Non-Black Students in ELA Over Time

To what extent does race moderate the relationship between ELA Scale Scores on the FSA during the 2021-2022 school year compared to the 2018-2019 school year?

Statistical Assumptions Race ELA

Before running the ANOVA, statistical assumptions were tested. The results of Levene's Test of Equality found that variances were equal across racial groups for ELA scores ($F(1,3369) = 11.890$, $p = <.001$), and the change scores from 2019 to 2022 were normally distributed, ensuring the validity of our data. A Kolmogorov-Smirnov test was utilized (Table 20) to determine normality. While the Kolmogorov-Smirnov indicates that the distribution of student scores significantly differs from the distribution against which it is being compared, the histograms suggest normality (Figure 3 & Figure 4).

Table 19 ELA Change in Score Kolmogorov-Smirnov Test of Normality

	Race	Statistic	df	Sig.
ELA Change in Score	Not Black	.048	2925	<.001
	Black	.072	446	<.001

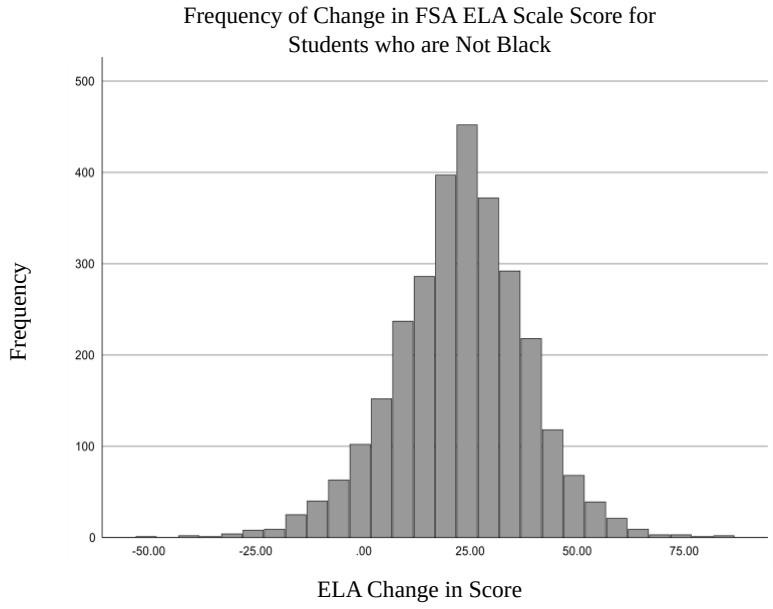

Figure 1 Frequency Change in FSA ELA Scale Score for Students who are Not Black

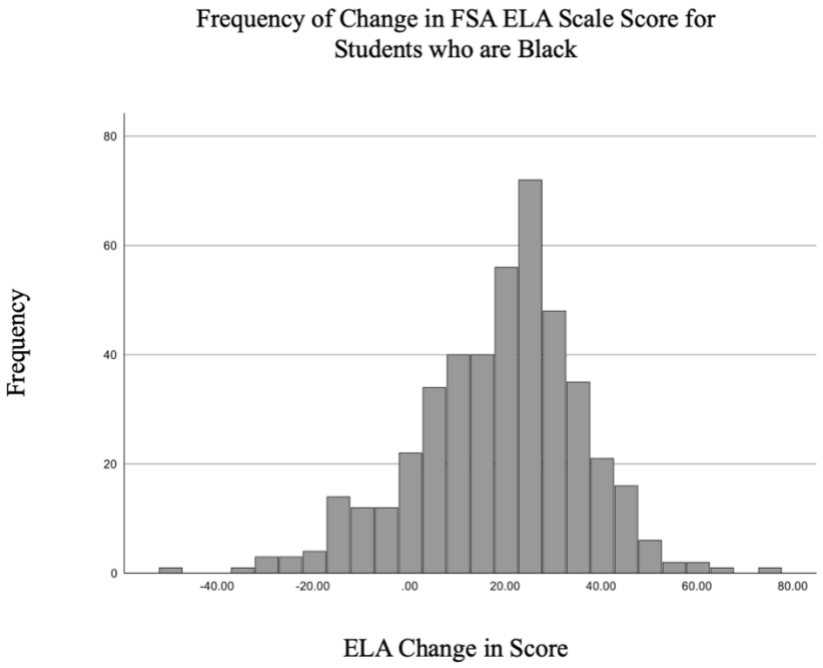

Figure 2 Frequency of Change in FSA ELA Scale Score for Students who are Black

Hypothesis Tests ELA Race

A two-way ANOVA examined the interaction of the FSA ELA achievement of the 2022 scale score data and race. There was a statistically significant interaction between the effects of race and academic achievement ($F(1,3369) = 49.481$, $p = .<.001$). The results suggest that Black students were learning at a different rate than Non-Black students. Simple main effects analysis showed that Black students were gaining scale score points on the FSA ELA at a lower rate than their Non-Black counterparts.

Table 20 FSA ELA Race Descriptive Statistics

ELA	2019	2022	Δ	Partial ETA squared	N
Not Black	312.55(30.361)	334.95(32.327)	22.4	.679	2925
Black	302.79(45.809)	321.27(46.627)	18.48	.538	446

Research Question 1b

FSA Results for Black Compared to Non-Black Students in Mathematics Over Time

To what extent does race moderate the relationship between Mathematics Scale Scores on the FSA during the 2021-2022 school year compared to the 2018-2019 school year?

Statistical Assumptions Race Mathematics

Before running the ANOVA, statistical assumptions were tested. A review of Levene's test for equality of error variances was violated for race as a moderator variable, indicating that the variances were not equal, and caution is warranted in interpreting the two-way ANOVA results. Levene's test showed that the variances in the 2019 Mathematics FSA Scale Scores were not equal ($F(1,3370) = 3.207$, $p = .073$). Also, Levene's test showed that variances for 2022 Mathematics FSA Scale Scores were not equal ($F(1,3370) = 6.196$, $p = 0.13$). A Kolmogorov-Smirnov test was utilized (Table 22) to determine normality. While the Kolmogorov-Smirnov indicates that the distribution of student scores significantly differs from the distribution against which it is being compared, the histograms suggest normality (Figure 3 & Figure 4).

Table 21 Mathematics Change in Score Kolmogorov-Smirnov Test of Normality

	Race	Statistic	df	Sig.
Mathematics Change in Score	Not Black	.048	2926	<.001
	Black	.074	446	<.001

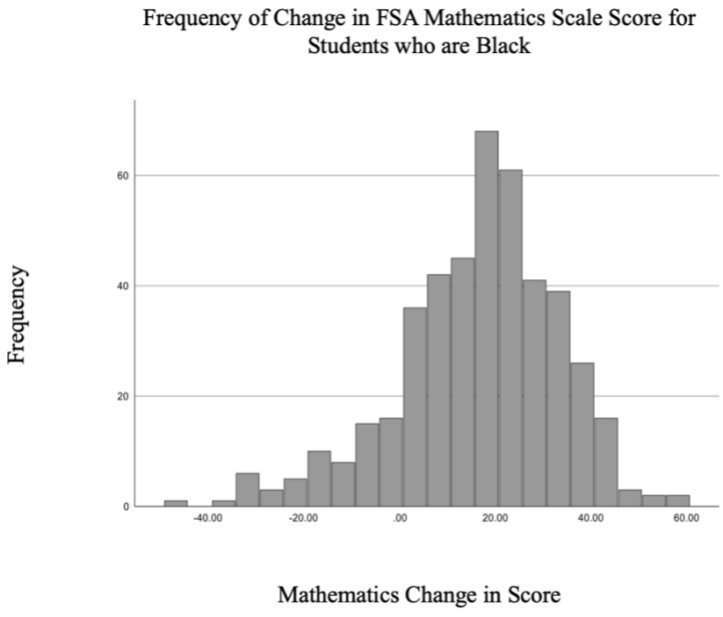

Figure 3 Frequency of Change in FSA Mathematics Scale Score for Students who are Black

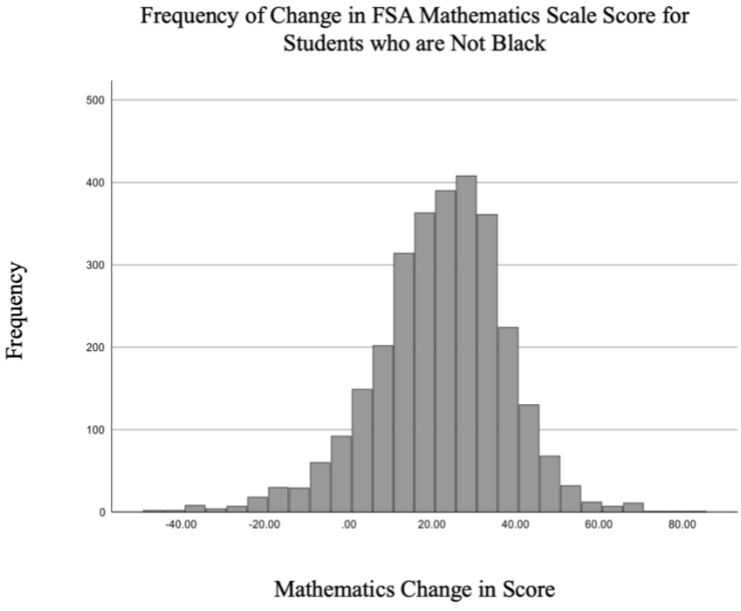

Figure 4 Frequency of Change in FSA Mathematics Scale Score for Students who are Not Black

Hypothesis Tests Race Mathematics

A two-way ANOVA examined the interaction of the FSA Mathematics achievement of the 2022 scale score data and race. There was a statistically significant interaction between the effects of race and academic achievement ($F(1,3370) = 54.199$, $p = .<.001$). The results suggest that Black students are learning at a different rate than Non-Black students. Simple main effects analysis showed that Black students were gaining scale score points on the FSA ELA at a lower rate than their Non-Black counterparts.

Table 22 FSA Mathematics Race Descriptive Statistics

Mathematics	2019	2022	Δ	Partial ETA squared	N
Not Black	312.85(31.271)	334.61(33.746)	21.76	.659	2926
Black	303.03(45.214)	319.22(46.704)	16.19	.481	446

Research Question 2$_a$

FSA Results for Low SES Students Compared to Non-SES Students in ELA Over Time

To what extent does SES moderate the relationship between ELA Scale Scores on the FSA during the 2021-2022 school year compared to the 2018-2019 school year?

Statistical Assumptions Race Mathematics

Before running the ANOVA, statistical assumptions were tested. The results of Levene's Test of Equality found that variances were equal across SES groups for ELA scores ($F(1,3373) = 30.406$, $p = <.001$), and the change scores from 2019 to 2022 were normally distributed, ensuring the validity of our data. A Kolmogorov-Smirnov test was utilized (Table 24) to determine normality. While the Kolmogorov-Smirnov indicates that the distribution of student scores significantly differs from the distribution against which it is being compared, the histograms suggest normality (Figure 3 & Figure 4).

Table 23 ELA Change in Score Kolmogorov-Smirnov Test of Normality

	SES	Statistic	df	Sig.
ELA Change in Score	No	.054	1686	<.001
	Yes	.111	1689	<.001

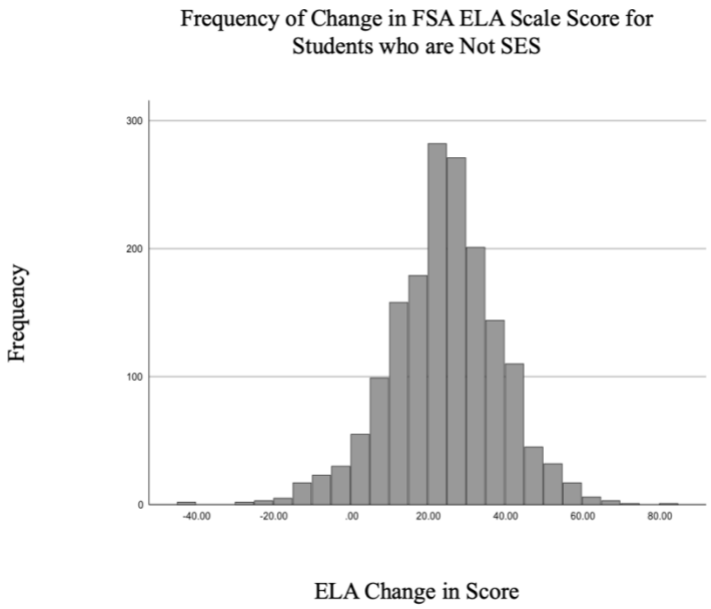

Figure 5 Frequency of Change in FSA ELA Scale Score for Students who are Not Low SES

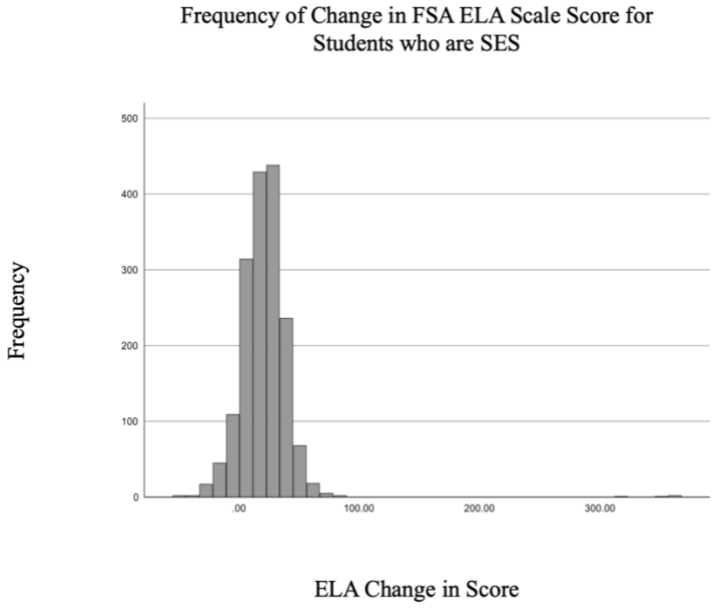

Figure 6 Frequency of Change in FSA ELA Scale Score for Students who are Low SES

Hypothesis Tests SES ELA

A two-way ANOVA examined the interaction of the FSA ELA achievement of the 2022 scale score data and SES. There was a statistically significant interaction between the effects of SES and academic achievement ($F(1,3373)$ = 130.988, p = .<.001). The results suggest that low-SES students are learning at a different rate than non-SES students. A simple main effects analysis showed that SES students gained scale score points on the FSA ELA at a lower rate than their non-SES counterparts.

Table 24 FSA ELA SES Descriptive Statistics

ELA	2019	2022	Δ	Partial ETA squared	N
Not Low SES	316.82(24.742)	340.74(26.814)	23.92	.738	1686
Low SES	305.69(38.761)	325.54(39.961)	19.85	.584	1685

Research Question 2b

FSA Results for Low SES Students Compared to Non-SES Students in Mathematics Over Time

To what extent does SES moderate the relationship between Mathematics Scale Scores on the FSA during the 2021-2022 school year compared to the 2018-2019 school year?

Statistical Assumptions SES Mathematics

Before running the ANOVA, statistical assumptions were tested. The results of Levene's Test of Equality found that variances were equal across SES groups for Mathematics scores ($F(1,3370) = 12.819$, $p = <.001$), and the change scores from 2019 to 2022 were normally distributed, ensuring the validity of our data. A Kolmogorov-Smirnov test was utilized (Table 26) to determine normality. While the Kolmogorov-Smirnov indicates that the distribution of student scores significantly differs from the distribution against which it is being compared, the histograms suggest normality (Figure 3 & Figure 4).

Table 25 Mathematics Change in Score Kolmogorov-Smirnov Test of Normality

	SES	Statistic	df	Sig.
Mathematics Change in Score	No	.041	1687	<.001
	Yes	.057	1685	<.001

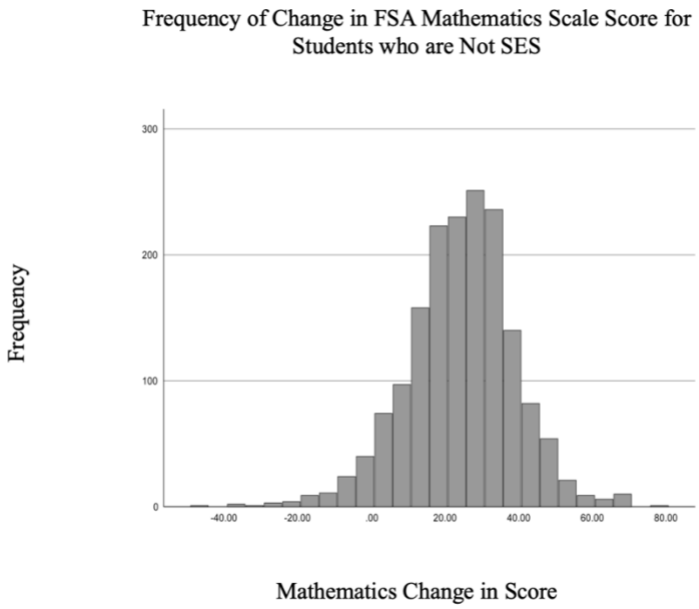

Figure 7 Frequency of Change in FSA Mathematics Scale Score for Students who are Not Low SES

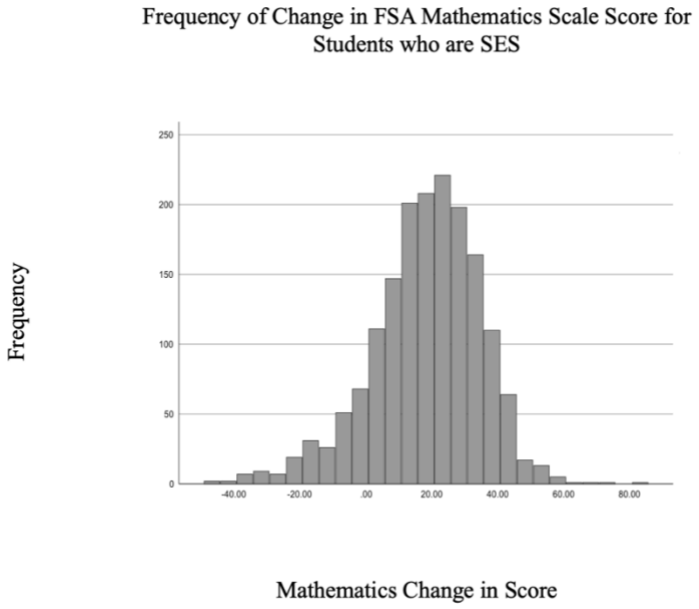

Figure 8 Frequency of Change in FSA Mathematics Scale Score for Students who are Low SES

Hypothesis Tests SES Mathematics

A two-way ANOVA examined the interaction of the FSA Mathematics achievement of the 2022 scale score data and SES students. There was a statistically significant interaction between the effects of SES and academic achievement ($F(1,3370)$ = 170.118, p = .<.001). The results suggest that SES students are learning at a different rate than non-SES students. Simple main effects analysis showed that SES students were gaining scale score points on the FSA Mathematics at a lower rate than their non-SES counterparts.

Table 26 FSA Mathematics SES Descriptive Statistics

Mathematics	2019	2022	Δ	Partial ETA squared	N
Not Low SES	317.49(25.796)	341.52(27.792)	24.03	.679	1687
Low SES	305.62(39.041)	323.62(40.928)	18.00	.538	1685

Summary

This chapter overviews the statistical test used to determine the relationship between student achievement on the Florida Standards Assessment (FSA) ELA and Mathematics and minority and low-socioeconomic status. Information regarding missing data and data cleaning was discussed. A review of the research questions was provided, as well as a review of the variables being tested in each section of the chapter. Statistical assumptions were reviewed for each data set. A Kolmogorov-Smirnov test was run to address normality, and Levene's test was used to analyze homogeneity of variance for moderating variables.

The results from the two-way ANOVA used to answer Research Question 1 determined that when race was used as a moderating variable, there were statistically significant interactions for student FSA scale scores. The results for the two-way ANOVA comparing low

socioeconomic student status and achievement also yielded statistically significant results. Both results were analyzed by splitting the file with race and SES status and determining the simple main effects. The means and standard deviations for the 2019 and 2022 assessments and the change (Δ), partial ETA squared, and sample size were provided.

Chapter Five will summarize the results and link those results to the research that was presented in Chapter Two. Additionally, implications for educational practice will be discussed in the following chapter. Based on the educational implications of the study's findings, the researcher will present questions and suggestions for further research as a result of this analysis.

CHAPTER FIVE: DISCUSSION AND CONCLUSION

Introduction

This study examined the academic achievement of vulnerable populations through the COVID-19 pandemic. The problem addressed in this study was that students from vulnerable populations struggled to gain equitable access to quality education during school closures caused by the global health crisis. Disruptions in education prevented students from continuing routine and face-to-face academic instruction in core subject areas for several months, raising concerns about a widening achievement gap for students from vulnerable backgrounds. This study was conducted to determine (a) if there was an achievement gap between Black and non-Black students, (b) if there was an achievement gap between low socioeconomic and financially stable students, and (c) if there was a gap, how significant was the learning disadvantage. This study's results provided insight into levels of student success during a large-scale emergency education event. In the previous chapter, the researcher identified multiple gaps in student achievement. Chapter five focuses on analyzing these findings within the context of current literature. This chapter also provides study limitations, significance, implications for practice, and future research suggestions.

Research Questions and Hypotheses

The study was guided by the following research questions and hypotheses:

Research Question 1

To what extent does being black moderate the relationship between scale scores in (a) ELA or (b) Mathematics on the Florida Standards Assessment during the 2021-2022 school year compared to the 2018-2019 school year?

$H_{1\text{-}a}$ – There is a statistical difference in the growth demonstrated on the FSA ELA scale scores between black students and their peers on the Florida Standards Assessment.

$H_{1\text{-}b}$ – There is a statistical difference in the growth demonstrated on the FSA ELA scale scores between black students and their peers on the Florida Standards Assessment.

- Variables
  - Moderator: Race (African American, Asian, Caucasian, Hispanic, Other)
  - Independent: Year of assessment
  - Dependent: FSA ELA achievement level, FSA Mathematics achievement level
  - Statistical Tool: Two-way Analysis of Variance (ANOVA)

Research Question 2

To what extent does being a low-SES student moderate the relationship between scale scores in (a) ELA or (b) Mathematics on the Florida Standards Assessment during the 2021-2022 school year compared to the 2018-2019 school year?

$H_{2\text{-}a}$ – There is a statistical difference in the growth demonstrated on the FSA ELA scale scores between low-SES students and their financially stable peers on the Florida Standards Assessment.

$H_{2\text{-}b}$ – There is a statistical difference in the growth demonstrated on the FSA ELA scale scores between low-SES students and their financially stable peers on the Florida Standards Assessment.

- Variables
  - Moderator: Economic status (Enrolled in Free/Reduced Lunch)
  - Independent: Year of assessment
  - Dependent: FSA ELA achievement level, FSA Mathematics achievement level
  - Statistical Tool: Two-way Analysis of Variance (ANOVA)

Summary

The statistical determination from the study demonstrates a disparity in academic performance between Black students and their non-Black peers on the FSA ELA and mathematics assessments within CCPS. Specifically, Black students are not increasing their scale scores at the same rate as their peers, highlighting a persistent achievement gap. This suggests that Black students may be facing unique challenges and systematic barriers that hinder their academic progress during responses to a crisis through emergency education. The study's findings also reveal that students from low socioeconomic backgrounds are not improving their scale scores on the FSA ELA and mathematics assessments at the same rate as their peers from higher socioeconomic backgrounds. This trend underscores the achievement gap driven by financial disparities. Addressing these disparities for both Black and low-socioeconomic students require targeted strategies to support these students and to ensure equitable access to quality education during emergencies, such as the COVID-19 pandemic. Clearly, the COVID-19

Pandemic had significant implications for education worldwide. Learning loss, limited access to curriculum due to a digital divide, and struggles with mental health and well-being are three predominant areas of concern for vulnerable students during emergency situations.

A critical knowledge gap has been closed by analyzing how school shutdowns impacted vulnerable populations. Many assumptions have been made about how COVID-19 school closures have impacted students. However, there has been limited data showing specific evidence on the long-term impacts caused by school closures. This study analyzed student scores on the FSA to provide a clear illustration of how Black and low-socioeconomic students struggled to perform at the same rate as their non-vulnerable peers. Without immediate action, these gaps can potentially continue or increase, making significant achievement gaps more prevalent than pre-pandemic levels.

School closures led to significant disruptions in learning, with many students experiencing a loss of face-to-face instruction (Clemente et al., 2022; Fenner & Cernev, 2021). The abrupt shift to remote learning exacerbated educational inequities, widening learning disparities, especially among students from disadvantaged backgrounds (Kinsey et al., 2020; Reimers & Schleicher, 2020). The digital divide for struggling families remains a barrier to accessing quality education (Tarricone et al., 2021). Many students lacked access to the necessary technology, such as computers, tablets, and reliable internet, which hindered their participation in remote learning lessons (Evans, 2004; Lythereatis et al., 2022; Thomas, 2008). While many students could access digital devices, they were also met with barriers to digital literacy, such as unfamiliarity with online resources (Garcia & Weiss, 2020). Both students and teachers faced challenges in navigating online classrooms, understanding digital content, and maintaining focus with a lack of

hands-on learning, impacting the effectiveness of online education (Yates et al., 2021). It is important to note that many teachers were not adequately prepared or trained for the rapid shift to online teaching, affecting the quality of instruction (Bond, 2021; Crompton et al., 2021; Doll et al., 2021; Tarricone et al., 2021). School closures, the digital divide, and a lack of digital literacy contributed to learning loss for all students; however, vulnerable populations were particularly impacted during the COVID-19 pandemic.

Health and safety remained a top concern throughout the COVID-19 pandemic as hospital admissions and mortality rates climbed. Vulnerable populations were already at a higher risk for illness, making contracting COVID an increased concern for these students and their family members (Adler et al., 1994). An unexpected consequence of school closures was isolation's impact on students during lockdown. Extended periods of remote learning and peer isolation affected students' social and emotional well-being (Clemente-Suárez et al., 2022; Doll et al., 2021). These students lacked key interactions with adults who consistently demonstrated care and compassion, as well as comfort in daily routines and the safety of their school campus. While at home, both students and teachers experienced increased stress and anxiety due to the uncertainty and changes in the educational environment as well as the rapidly changing information about the pandemic (Kilinçel et al., 2021). Both research analyzed in chapter two, as well as data presented from the study, suggest that students, especially from vulnerable populations, were impacted both physically and mentally by the COVID-19 crisis.

Data analyses from this study also raise concerns about the progress of SDG4, access to quality education. The rapid spread of COVID-19 led to school closures, which impacted 95 percent of students worldwide, creating hurdles to receiving high-quality education, or

eliminating access altogether (United Nations, 2023). Studies identified learning loss in four out of five countries, and more than 300 million students lacked basic reading and numeracy skills (United Nations, 2023). For example, in 2019, only 58 percent of students worldwide were proficient in reading by the end of primary school. If the results of this study are comparable to other settings around the world, there is a major concern for the progress made by students from vulnerable populations. COVID-19 school closures significantly impacted the target of 2030 for SDG4 (Fenner & Cernev, 2021; Nundy et al., 2021; Shulla et al., 2021).

Implications for Practice

Change in education must occur at every level, from individual classrooms to the bodies that govern educational institutions, to mitigate the learning loss prompted by COVID-19 school closures. Learning gaps between vulnerable populations and their non-vulnerable peers have proven to be a longstanding inequity that needs to be alleviated (Caprani, 2016; Dreher et al., 2008; Freistein & Mahlert, 2016; Hák et al., 2016; Kushnir & Nunes, 2022; Pizzi et al., 2020). This study suggests that the learning gaps introduced by school closures during the pandemic may have increased for vulnerable populations. While many of the barriers that led to increased gaps have been discussed throughout the literature presented within this study, there are also several implications that may benefit educational systems prompted by school closures.

School closures forced educational institutions to adjust how instruction was presented to students. For example, the pandemic accelerated the adoption of educational technologies, which provided new levels of creativity for teachers to develop lessons in innovative ways. Teachers provided assignments that more closely aligned with real-world experiences, using presentation and word processing software, and communicated through email or text messages. Schools

adopted new online classroom software without traditional classroom instructional strategies, which benefited digital literacy (Creed & Morpeth, 2014; Rush et al., 2014). Online classrooms paved the way for schools to introduce increased hybrid learning models for the future, where combining in-person and remote education could benefit school districts in the path of temporary school closures for hurricanes, snowstorms, or extreme temperatures. The introduction of online learning allowed schools to maintain their delivery of instruction, even when students were unable to attend class because of a crisis or if they were absent due to illness (Slavin & Storey, 2020). With these new opportunities, however, there was also a need to redesign the allocation of resources to encourage the continuation of these innovative teaching and learning methods.

Another future implication is the continued shift in policy and infrastructure improvements to reduce achievement gaps, as remote learning only works if all students have access to technology (Beaynoyer et al., 2020; Brown et al., 2020; Reimers, 2022). Thus, there has also been increased investment in educational technology and infrastructure to bridge digital divides. For remote or hybrid learning to be successful, all students must have access to a device and reliable internet (Carcia & Weiss, 2020; Reimers, 2022). To ensure equitable access, change must occur at every level, including local and federal government policy reforms to build upon the momentum toward hybrid learning. To this end, governments and educational institutions have been prompted to reconsider and reform policies to better support remote and emergency education. However, it is critical that these policies identify how to specifically support students from vulnerable populations who typically have less access to technology.

Equity and inclusion must be focused on if efforts to reduce the achievement gap are to be successful. Historically, the achievement gap has impacted vulnerable students, leading to a

greater focus on providing targeted support to these groups of children. While school shutdowns amplified these gaps, more must be done to ensure equitable access to quality education for all. The COVID-19 crisis highlighted the need for more inclusive educational practices that cater to diverse learning needs and circumstances. Additional resources, including time, funding, and materials, must be addressed for equitable educational access.

However, the allocation of resources is not the only focus that schools must reconsider, as many teachers lack the appropriate training to support the diverse needs of students through online instruction (Doucet et al., 2021; Morgan, 2022; Pokhrel & Chhetri, 2021). To achieve this goal, however, there needs to be a shift in how the traditional classroom is set up, and schools must realign their professional development focus to support their current staff and necessary changes in educational policy. There should be increased emphasis on professional development for teachers to enhance their digital and remote learning skills. In addition, teacher preparation programs must redesign their curriculum to ensure they are providing future teachers with digital instruction best practices. These changes are necessary as schools were unprepared for the sudden stoppage in instruction or the ability to provide crucial mental health services.

Global school shutdowns have had a significant impact on the success of the Sustainable Development Goals (SDGs) as well. Current research is primarily limited to qualitative studies meant to assess the impact COVID-19 has had on the SDGs (Naidoo & Fisher, 2020). For example, the goal of good health is most heavily impacted due to the nature of the pandemic. Other challenges stem from a lack of tourism, cutting into many countries' gross domestic product (GDP) and boosting industry, innovation, and infrastructure, which has been halted due to lockdowns (Naidoo & Fisher, 2020). Over 60 percent of the SDG targets are expected to

experience negative long-term impacts due to the pandemic (Naidoo & Fisher, 2020). SDG2, no hunger, is one of several goals with an updated status of 'threatened' due to reduced production due to lockdowns. Some research shows that 90 percent of the SDG targets will be negatively impacted by COVID-19, although studies suggest that 40 percent can move toward sustainability, even during the pandemic (Nerini et al., 2020). While research is evolving and the world is still experiencing different effects from COVID-19, some countries are already reporting deficits in their ability to meet the standards of the SDGs. Rising poverty due to unemployment, food insecurity due to weakening supply chains, and degraded physical and mental health of people due to stress are all problematic in the achievement of the goals (Brown et al., 2020; Buheji et al., 2020; Joshi et al., 2021; Sumner et al., 2020).

The COVID-19 pandemic has significantly impacted the progress towards SDG4, to ensure inclusive and equitable education for all, as well. School closures have created learning loss (Dorn et al., 2020; Donnelly et al., 2021; Engzell et al., 2021), widened disparities for vulnerable populations (Garcia & Weiss, 2020; Masonbrink, & Hurley, 2020), jeopardized the mental health of students (Kılınçel et al., 2021; Ma et al., 2021; Sahu, 2020), increased dropout rates (Garcia et al., 2020), and disrupted educational institutions (Sahu, 2020; Tadesse & Muluye, 2020; Tarkar, 2020). Due to the global pandemic, the progress toward the SDGs, specifically equity and access to education, will need to be assessed regularly to determine the feasibility of the current timeline.

As the global community shifts from emergency responses to the pandemic to mitigating the effects of the crises, new educational policies are being developed and implemented. School closures from the COVID-19 pandemic focused a spotlight on the importance of online learning,

which is likely to remain a crucial component of educational policy in the future (Fuller & Stevenson, 2019; Reimers & Schleicher, 2020). Governments and educational institutions must invest in technology and infrastructure to ensure students can access high-quality online learning (Du Plessis & Mestry, 2019; Knouse, 2010; Renes & Strange, 2011). Schools worldwide are tasked with adjusting educational frameworks for years to come in order to remediate skills that were missed during the pandemic and mitigate learning loss due to shutdowns (Bayrakdar & Guveli, 2020; Menard & Wilson, 2014; Poletti, 2020). Although many institutions are still coping with the urgency of the situation, there are many opportunities to increase the preparedness of response to emergency situations (Greenhow et al., 2021; Pokhrel et al., 2021; Reimers et al., 2020). Higher Education Institutions may also need to explore how future teachers are prepared to handle online education components as pedagogy evolves to include digital teaching and learning (Doll et al., 2021; Lloyd et al., 2012; Rapanta et al., 2020). COVID-19 has had a profound impact on the future of educational policy, highlighting the need for greater flexibility, equity, access, health and safety, and resilience planning in education.

Ultimately, the SDGs are in place to improve the quality of life for all members of the global community. It is important to note that many goals are specifically directed at the most vulnerable populations to eliminate barriers to basic needs, including survival, physical and psychological safety, and self-esteem, as outlined by Maslow's Hierarchy of Needs (Levenson, 2017; Sachs, 2012).

Schools provide much more than education, especially to students from vulnerable populations in an effort to meet the needs of children. These students receive nutritional support, social and emotional development, health services, mental health support, safety, supervision,

and a sense of belonging to a community within their school (Kinsey et al., 2020; Reimers & Schleicher, 2020). Clearly, instruction is not the only part of the school experience that must be reexamined to ensure equitable access to the plethora of resources that schools provide to support students from vulnerable populations.

Limitations

The following limitations were recognized and applied to this research study:

1. At the time of this study, the researcher served as an administrator at one of Cimmaron County's public elementary schools.
2. While the demographics are representative of the United States, there was a wide spectrum of responses to the COVID-19 pandemic and the implementation of remote learning worldwide. Moreover, the results of this study may not be representative of other school districts throughout the United States.
3. Teachers play a critical role in students' success. Results of student achievement can vary based on the teacher or even the school a student attended during the study's assessment window.
4. Schools in more affluent areas tend to have access to more technology and resources within the home. With Cimmaron County having a large student population, it is possible that data could be skewed.
5. Enrollment is critical for academic success. Students from vulnerable populations tend to be more transient, making this study's data more closely based on stable families within the vulnerable population group.

6. This study focused on a financially stable, government-funded public school district in Florida. Many educational institutions could not support their students with resources and remote learning the way Cimmaron County could in times of crisis. Most low and middle-income countries reached a maximum of 75 percent of their students through remote learning (Dreesen, et al., 2020).

Implications for Future Research

The results of this study highlight the need for additional research in the following areas:

1. Future research should address the state of technology and digital literacy available to students. One of the greatest hurdles of school closures was access to education. While many school districts were able to provide devices for students and transition to remote learning, it is important to understand what percentage of students have access to their own digital devices. Then, it is critical to understand student familiarity with online learning platforms.
2. Future research should address digital literacy and how technology is utilized in daily lessons. If students are expected to shift to a digital platform in an emergency, teachers must utilize digital classrooms regularly to make the transition seamless. How are teacher preparation programs preparing future educators for digital instruction, especially with vulnerable students? How are districts directing professional development funds to address rapidly changing technology with teachers?
3. The effects of the COVID-19 pandemic will be felt for years to come. Future research should analyze high school grade point averages, graduation rates, and college entrance statistics for students impacted by school closures. Specifically, it would be beneficial to

understand how school closures impacted students who missed foundational elementary school years where phonics and number sense were taught.

4. School shutdowns prompted many people to work and/or learn remotely. Since the initial shutdown of schools and businesses, many individuals still work or attend school at home in virtual settings. Many families who allow their children to stay home to attend school in a virtual setting have the financial resources or accommodating professions to provide this option. Future research would be beneficial to determine how this transition impacts enrollment within schools, the rigor of academics, and the impact on school performance levels.
5. While emergency education has been practiced for decades, there has never been a global emergency of this scale. What is being done by organizations such as the United Nations and other global leaders to prepare for another global emergency and ensure minimal disruption in access to quality education?
6. According to reports (Allen et al., 2018; Friedman et al., 2020), the SDGs were moving positively before the COVID-19 pandemic. Further research should analyze the global pandemic's impact on SDG4; access to quality education in developing countries.
7. The United States provided additional government funding to eliminate learning loss caused by school shutdowns during the pandemic. Future research to determine the success of these programs would provide a progress report on these efforts and help determine the need for additional remediation funding.

Overall Significance of the Study

As the global community shifts from emergency responses to the pandemic to mitigating the effects of the crises, new educational policy is being developed. School closures from the

COVID-19 pandemic focused a spotlight on the importance of online learning, which is likely to remain a crucial component of educational policy in the future (Fuller & Stevenson, 2019; Reimers & Schleicher, 2020). Governments and educational institutions must invest in technology and infrastructure to ensure that students can continue accessing high-quality online learning (Du Plessis & Mestry, 2019; Knouse, 2010; Renes & Strange, 2011). Communities worldwide will adjust educational frameworks for years to mitigate learning loss and missed educational opportunities caused by shutdowns (Bayrakdar & Guveli, 2020; Menard & Wilson, 2014; Poletti, 2020). Although many institutions are still coping with the severity of the situation, there are many opportunities to increase the preparedness of response to future emergency situations (Greenhow et al., 2021; Pokhrel et al., 2021; Reimers et al., 2020). Higher Education Institutions may also need to explore how future teachers are prepared to handle online education components as pedagogy evolves, including digital teaching and learning (Doll et al., 2021; Lloyd et al., 2012; Rapanta et al., 2020). Clearly, COVID-19 has profoundly impacted the future of educational policy, highlighting the need for greater flexibility, equity, access, health and safety, and resilience planning in education.

Before COVID-19, students from vulnerable populations were already underperforming compared to their non-vulnerable peers (Caprani, 2016; Dreher et al., 2008; Freistein & Mahlert, 2016; Hák et al., 2016; Kushnir & Nunes, 2022; Pizzi et al., 2020). This study demonstrated that students from vulnerable populations are especially prone to academic struggles when access to quality education is limited.

Conclusion

Chapter five discusses the significant impact of the COVID-19 pandemic on the academic achievement of vulnerable populations, focusing on widening achievement gaps for

Black students and those from low socioeconomic backgrounds. Research highlights how school closures impacted students when they were removed from face-to-face instruction, exacerbating educational inequities. While emergency education plans exist to eliminate barriers for impacted students to access quality education, the pandemic's magnitude was beyond any organization's ability to assist. Emergency education refers to the work within one community, not the entirety of the global community, all at once. This chapter emphasizes the need for targeted strategies to ensure equitable access to quality education during big and small crises and has suggested policy reforms and investment in technological infrastructure. Additionally, the chapter discusses the importance of supplementary services provided by schools and the need for additional training for teachers in the future. The study concludes with implications for future research, stressing the need for continued focus on digital literacy, emergency preparedness, and the long-term impacts of the pandemic on academic success in relation to SDG4.

APPENDIX A: PERMISSIONS

UNIVERSITY OF CENTRAL FLORIDA

Institutional Review Board
FWA00000351
IRB00001138, IRB00012110
Office of Research
12201 Research Parkway
Orlando, FL 32826-3246

NOT HUMAN RESEARCH DETERMINATION

May 22, 2024

Dear Jake Novak:

On 5/22/2024, the IRB reviewed the following protocol:

Type of Review:	Initial Study
Title of Study:	From Crisis to Classroom: Evaluating Academic Success in Vulnerable Populations During the COVID-19 Emergency Education Era
Investigator:	Jake Novak
IRB ID:	STUDY00006795
Funding:	None
Documents Reviewed:	• HRP 250 - Novak, Category: IRB Protocol; • SCPS Approval, Category: Letters of Support;

The IRB determined that the proposed activity is not research involving human subjects as defined by DHHS and FDA regulations.

IRB review and approval by this organization is not required. This determination applies only to the activities described in the IRB submission and does not apply should changes outside of administrative ones (study personnel, timelines, etc.) be made. If non-administrative changes are made (design, information collected, instrumentation, funding, etc.) and there are questions about whether these activities are research involving human in which the organization is engaged, please submit a new request to the IRB for a determination by **clicking Create Modification / CR** within the study.

If you have any questions, please contact the UCF IRB at 407-823-2901 or irb@ucf.edu. Please include your project title and IRB number in all correspondence with this office.

Sincerely,

Renea Carver
UCF IRB

APPENDIX B: PERMISSIONS

Seminole County Public Schools

Anna-Marie Cote, Ed.D.
Interim Deputy Superintendent

Educational Support Center
400 E. Lake Mary Boulevard
Sanford, Florida 32773-7127
Phone: (407) 320-0000
Fax: (407) 320-0281

Visit Our Web Site
www.scps.us

August 5, 2023

Jacob Novak
504 E. 14th Street
Sanford, FL 32771

Dear Mr. Novak,

I am in receipt of the proposal and supplemental information that you submitted for permission to conduct research in Seminole County Public Schools. You are granted permission to conduct the study described herein, *Equitable Academic Success through Educational Emergencies.*

is important to confirm, as indicated in your proposal, that you will only use deidentified data provided to you by an SCPS data analyst and that you will not independently access any student data that you are not authorized to review. In addition, all research related activities are to be conducted outside of normal school business.

Your first order of business is to contact Ms. Kelly Thomson, Director of Assessment, Accountability and Research. SCPS analysts support approved research requests outside of their contracted time and are not required to do so. It is important to share that they are compensated for their work by the researcher. Please contact Ms. Thompson to schedule time to talk with an analyst outside of their workday.

We would appreciate you sending a copy of your completed study to this office. Best of luck with your study!

Sincerely,

Anna-Marie Cote

Anna-Marie Cote, Ed.D.
Interim Deputy Superintendent, Instructional Excellence and Equity
Seminole County Public Schools

cc. Dr. Heidi Gooch, Assistant Superintendent, Elementary Schools
Mr. Paul Senko, Assistant Superintendent, Elementary Schools
Ms. Kelly Thompson, Director, Assessment, Accountability and Research

"A" Rated Academically High-Performing School District

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