AN ANALYSIS OF THE PERCEPTIONS OF ACADEMIC RIGOR BY PRINCE GEORGE'S COUNTY SECONDARY MATHEMATICS TEACHERS AND SECONDARY ADMINISTRATORS DURING THE COVID-19 CRISIS

BY

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ABSTRACT

The purpose of this study was to analyze the perceptions of academic rigor by teachers and administrators of secondary mathematics classrooms in Maryland, during a crisis. The identified problem is, during COVID-19 pandemic, school district leadership may not have effectively communicated with employees about rigor application expectations. The problem developed when schools shifted to virtual learning. The following research questions were developed from teachers' and administrators' application of academic rigor during crisis time in Prince George's County. RQ1: Do teachers and administrators have aligned ideas of academic rigor based on their responses and their provided evidence? RQ2: Is there alignment between the teachers and administrators' perceptions of academic rigor during times of crisis, specifically, the COVID-19 pandemic? The research questions called for a basic qualitative study using coding, thematic, and comparison analysis approach to gather the stories of teachers and administrators. The participants were secondary (grades 6–12) teachers and administrators of mathematics in schools. A sample of 3 teachers, 4 administrators, with 2 years (minimum) experience were used. Each participant could compare teaching or monitoring during and before the COVID-19 pandemic. Responses were coded to find patterns regarding the application of rigor during COVID-19. The theory presumed in the study was if district leadership, administrators, and teachers have aligned perceptions of academic rigor in understanding and application, then academic growth can occur for students during crisis times. The results of the study were analyzed to find patterns of understanding between teachers and administrators in mathematics classrooms. The main finding of the study was that the teachers and administrators did not have

an aligned perception of academic rigor during the distance learning period. District Superintendents can use this study to address academic rigor during crisis times and establish protocols ensuring that the staff have aligned perceptions of rigor. To address this concern, we had the staff in the district utilize one definition of academic rigor and use one rubric measuring the levels of rigor in classrooms. Once educators follow one rating system, they can calibrate their instructional lenses. For future research, this study can be completed in other subject areas, noting any similar concerns.

CHAPTER 1: INTRODUCTION TO THE STUDY

The concept of academic rigor has been a debated term in the educational field. This study contains an analysis of the perceptions of the academic rigor of two educational stakeholders, teachers and administrators, and expectations of the application of rigor as communicated by the school district leadership. With the changing economy and increasing competition for employment, the demand for authentic, high-quality teaching and learning for the future of the society is paramount. These two stakeholders have direct contact with students and are responsible for educating said children.

The purpose of the study was to in”esti’ate teachers’ and administrators’ alignment regarding academic rigor and how these educators’ understanding of academic rigor was impacted in times of a global crisis, where the traditional teaching models may not be available. In local or international emergencies, student education must continue for societies to continue to grow. Therefore, the educational entities must find alternative methods to ensure that student growth continues.

The significance of this study is to see if there was alignment between the perceptions of academic rigor between teachers and administrators in times of global crisis. The study took place on the east coast of the United States in Maryland. An urban school district in Prince Georges County, Maryland, was the location of the study’s subjects. The teachers and administrators of this school district provided their unique perceptions on academic rigor during the COVID-19 global crisis, thus providing the data for the study.

The study was intended to provide the groundwork for future educational leaders to design a systematic process to operate in times of crisis. In addition, future researchers may evaluate the

effectiveness of the steps taken by academic leadership (used in the study) during COVID-19 and make improvements for future work for educating students during a time of crisis. Although the data collected in the study only represented teachers and administrators in Prince George's County, it is hoped that the information can be applied in other counties in the country.

Study Background/Foundation

In March 2020, the global pandemic caused by the spread of a coronavirus called SARS-CoV-2, also known as the COVID-19 virus, resulted in the Maryland State Superintendent physically closing all schools (Sawchuk, 2020). The public initially believed the closure to be two weeks. The purpose of the state closure was to slow the spread of the virus by separating students, staff members, and teachers to return to the buildings after the virus was controlled. In addition, the closure of schools was intended to assist in the social and medical campaign to flatten the curve of viral infections. These closures also extended to multiple public locations such as retail stores, movie theaters, and gyms, except grocery stores and emergency medical and pharmaceutical facilities (Adenaiye et al., 2021).

Despite the closures, the numbers of positive COVID-19 tests continued to increase during the two-week timeframe; subsequently, the decision to reopen was delayed for a significant amount of time. During this closure, local educational agencies (LEAs) were still expected to effectively educate their populations by State Boards of Education (Cho, 2020). Thus began the development of the problem for the study of understanding if alignment exists between the perceptions of academic rigor between the teachers and administrators during times of crisis.

Educational leaders in Maryland had to develop distance learning models, which allowed the secondary students to begin taking classes over the internet while at home. Schools

worldwide have been forced rapidly to scale up online teaching, which has typically entailed unexpected expenditures (Oncology, 2020). School administrators were forced to purchase and distribute the technology in their systems, such as Google Chromebooks, laptop computers, and internet hotspots, to ensure every child's access to education in a fully immersive distance-learning environment.

This change in the delivery of academic instruction was abrupt. Thus, teachers and administrators in various districts did not have the opportunity to build the infostructure to sustain this shift in pedagogy (Cho, 2020). With the uncertainty of the alignment between teachers' and administrators' perception of academic rigor, school leaders cannot ensure that their schools produce college and career-ready students based on state standards. Rigor conceived and enacted by teachers can profoundly impact the types of citizens schools nurture and develop, and the role school can play in students' lives (Gibbs, 2017). The planning of rigorous lesson activities influences how students understand and perform on standardized assessments, leading to the state's definition of college and career readiness.

Academic rigor has been identified as a critical component in the development of teaching and learning (Krathwohl, 2002). Krathwohl's writing, that academic rigor has implications of teaching and learning has been the source of debate in educational communities for many years. However, the main factor that needs clarification is not the need for academic rigor, rather the definition and application (Kaplan, 2017). Rigor can have various definitions based on individuals' training and the circumstances of its application (Rose, 2020). This variation of the understanding and definition of academic rigor can have possible varying effects on the perceptions of educational groups such as teachers and administrators. As both groups are

responsible for and have perceptions on fostering the education of students, these varying perceptions can be a source of conflict of which the student's education is on the line.

Educating students and applying academic rigor in the curriculum is the foundation of the education system (Cho, 2020). Educational leaders are responsible for creating environments and cultures in which students and teachers can thrive, and learning is the primary focus. Teachers' primary responsibilities are developing lessons in which students learn and demonstrate said learning and become productive citizens (Chamberlin et al., 2020). Administrators are also tasked with the monitoring and accountability of the school environment, inclusive of teachers and students. This symbiotic relationship is designed to lead to productive student learning outcomes.

In 2020, educational leaders were faced with the SARS-CoV-2 virus known as COVID-19, which resulted in distance learning and online instruction becoming the primary instructional delivery method in many school districts. The COVID-19 virus caused a global pandemic in that the airborne virus was contagious among all people and proved to be lethal in various communities. Furthermore, the virus attacked the victims' lungs, causing shortness of breath and a lack of oxygen to the body (Hua, 2020). With the uncertainty of contagious nature of the virus, the identities of those carrying the virus, and prevention methods, district leaders decided to close the school and move to a distance-learning format. Distance learning consisted of students and teachers using online platforms to facilitate the state-mandated curriculum.

The local educational agencies had teachers participate in training to provide the cognitive tools needed to facilitate online instruction (Chamberlin et al., 2020). This training included but were not limited to the use of Google Classrooms, Zoom, Google Meet, Microsoft

Teams, and a host of other online platforms. The study contains an analysis of the usage and impact of academic rigor by teachers and administrators over multiple distance learning platforms. The goal of the study was to see if the crisis and distance learning impacted the perceptions of academic rigor between these secondary mathematics teachers and administrators.

Current State of the Field in which the Problem Exists

With the advent of the COVID-19 pandemic, the landscape of the educational community is currently in a state that has not been experienced before. While school systems have had to close for various threats on the safety staff and students, the educational leadership of Prince Georges County chose to move to multiple online teaching platforms, with all schools for the first time. This shift has been the source of many debates in politics and can carry significant political implications for the future of education. Teachers had to plan and adjust to online platforms with little training (Chamberlin et al., 2020). School district leadership needed to facilitate training staff not only on the use of online media but also on techniques and pedagogy for engagement for the students in rigorous instruction (Tomasik et al., 2020).

With the decline of the global economy and people being terminated from their positions due to the COVID-19 virus, public school system budgets also decreased. This decrease caused school systems to impose hiring freezes, reduce per-pupil budgeting funds, and impose restrictions on school-based purchases. As a result, school leaders had to be strategic on school spending to ensure that when the students return to buildings, the necessary equipment is available. In addition, school leaders have had to analyze the infrastructure and materials to support all online learning platforms. These budgetary changes and restraints can change students' overall experience in school once they return to buildings.

In addition to the budgetary concerns, there were also academic impacts due to the distance virtual learning environment. Debates among parents and school leaders on student engagement began to arise. Students were required to turn on web cameras, exposing their living conditions, which had become a primary concern of the public (Tomasik et al., 2020). Conversely, educators could not measure the engagement levels of students or their understanding as they could not see students' faces or expressions to ensure their knowledge of concepts. Furthermore, educators have become concerned that secondary students have begun to engage in other tasks, such as employment, instead of being intellectually present in their virtual classrooms (Wu, 2020). The decline in student cognitive engagement and physical attendance can have a direct impact on overall student achievement. Teachers and administrators now have the responsibility of combating the educational and academic concerns caused by the effects of the COVID-19 global pandemic.

Historical Background

The State of Maryland has encountered crises that have affected the Local Educational Agencies (LEAs) and leaders in the past. For example, leaders in the State of Maryland have had to close schools due to severe snowstorms, such as the east coast blizzard of 1996. As a result of the blizzard, school and business were closed for several weeks (Ambrose, 2016). With little warning, the Eastern Region of the United States was struck with up to 6 feet of snow over a two-to-three-day period. Local governments were simply unable to move the massive quantities of snow, making driving roads unsafe to travel. During this time, school leaders were forced to close schools for the safety of all staff and students.

While the schools were closed, students were not required to complete classwork, as schools did not have access to school. Student work packets were placed on the school websites; they were only meant for student academic skills and were not used toward student grading (Ambrose, 2016). The work packets were generic, per subject area, and were not mandatory for student grading. Teachers were not responsible for continuing education of students, nor were administrators held accountable by the school district due to the lack of access to the students.

The Washington, D.C. Metropolitan area blizzard of 1996 shares similarities with the current COVID-19 global pandemic. It was the cause of a widespread economic shutdown, which hindered the education of students. At the time, the student had little to no access to classwork. Therefore, administrators' and teachers' perceptions of academic rigor were not affected. Local educational agencies' concern, at the time, shifted toward ensuring that their communities had food in the homes and allowed for families in walking distance to walk to the buildings and pick up lunch supplies twice a week for any students in the homes.

Grocery stores and shopping options were minimal for the public; thus, school systems' priorities focused more on student survival than academic classwork. The Maryland Governor issued a State of Emergency, which forgave mandatory 180-day school year of LEAs. While schools were closed, little education was being completed, and the work being completed was optional but highly encouraged. Although the educational options were limited for teacher administrators and students, the accountability and responsibilities were also lifted by state governments (Ambrose, 2016). These reductions in accountability and state requirements during the East Coast Blizzard of 1996 are different, as explained, from the expectations of the current COVID-19 crisis.

The public was forced to quarantine in their homes since there was no straightforward cure for the COVID-19 virus. Thousands of people were dying from the viral attack on their lungs from the disease. The COVID-19 global pandemic would go on to claim the lives of over 130,000 individuals between March of 2020 and May of 2020, with over 3 million reported confirmed cases in the United States (Rashid et al., 2020). Based on Rashid's said data, the state of public health was in a global crisis. In Maryland, Governor Larry Hogan held a press conference announcing that to mitigate the effects of the COVID-19 pandemic, schools would be closed for a period of what was believed to be two weeks, from March 16, 2020 (Sroka, 2021), further detailing the amount of public panic and fear of the unknown.

A similar crisis faced by the educational leadership and local educational agencies were the events of the terrorist attacks of September 11th, 2001. On September 11, 2001, commuter flights were intentionally overtaken and crashed in the eastern United States, New York City, Washington, D.C., and rural Pennsylvania. These attacks were the cause of an overall sense of chaos in the Eastern United States. As a result, September 11, 2001, currently known as 9/11, became a significant moment in United States history (Ellis, 2002). As it stands, September 11th became another example of a crisis faced by local educational agencies, where school systems were faced with the decision to physically close schools while having to find another option to continue to educate students.

School systems leaders were once again faced with the decision to close schools due to the civil unrest and lack of safety assurances of school buildings. Schools of varying districts, specifically those in the immediate impact areas of the attacks, were closed for students and teachers in an abundance of caution. Local governors issued a state of emergency forgiving the

subsequent days from the mandatory 180-day school year on the weeks following the attacks (Mijanovich, 2010). During the closure, school systems opted to provide student work via school websites and work packets; however, the academic packages were not mandatory, nor did they affect student grades. Local state accountability for school systems requirements was not lifted, and students were assessed on the compulsory state curriculum frameworks. LEAs still used the high stakes standardized assessments, and the students' data were counted toward the school's annual ratings.

The terrorist attacks of September 11th draw similarities to the current COVID-19 crisis. During the September 11th crisis, local educational agencies were held accountable for students' academic progress, and school systems were still responsible for their student outcome data. As school systems were still responsible for student outcome data, the academic rigor alignment between teacher lesson plan activities and state curriculum expectations may have impacted those outcomes. Currently, the COVID-19 pandemic has the same accountability measures for educational agencies as the attacks of September 11th. The differences between the two events are the amount of time the students have been away from school buildings, the development of the internet being a catalyst for students' access to education and teachers (Klitzman, 2003). During 9/11 terrorist attacks, students spent an average of five school days away from their buildings. Conversely, during the current COVID-19 pandemic, students spent up to one year physically away from their school buildings, receiving their education through various online platforms.

Deficiencies in Evidence

The lack of research on teachers' and administrators' perceptions of academic rigor during a time of crisis was the gap where the study could assist the academic community. For example, the Prince George's County Public Schools community faced the global crisis of COVID-19 and was forced to move to a distance learning model, where students were being taught online through distance learning. Although a curriculum was provided to the teachers, there was no analysis of the lesson activities and plans that were provided to the students.

The instructional pivot from physical face to face instruction to virtual instruction and classrooms required the preservation of high-quality pedagogy practices and rigorous student work (Reynolds et al., 2020). Reynolds's writing references the importance of focus on instructional rigor in classrooms. While the teachers are primarily responsible for the instructional rigor implemented in their classrooms, administrators are now virtually accountable for monitoring and providing feedback on those instructional practices. The gap in research was the question of alignment between the perception of rigor between the teachers and administrators, with the communication of the expectation by district leadership during this time of crisis. Without research or literature on the effect of alignment or misalignment of the teachers' and administrators' perspectives, educators could not ensure that all steps are being taken for the academic growth of student outcomes.

Problem Statement

The general problem was the lack of communication on the expectations from district leaders on the alignment of perceptions of academic rigor in times of crisis when there was a change in the delivery of instruction. In a time of crisis, as with the current global pandemic of

COVID-19, student education and quality academic progress must continue. The COVID-19 pandemic has forced educational agencies to change the way students can engage in instruction.

The alignment of the teachers' and administrators' perceptions of academic rigor may have a critical impact on the resulting quality of instruction the students are receiving (Reynolds et. al, 2020). Consistency in the alignment of the administrators' and teachers' perceptions allows students to remain educated in times of crisis. This alignment may lead to secondary students labeled as college or career ready upon graduation from high school if another crisis is encountered (Early et al., 2020). The writings of Reynolds and Early, as mentioned, contribute to the theory of alignment of the perceptions of rigor having an impact on the instructional outcomes for students.

The specific problem was the lack of evidence, which shows that administrators and teachers have aligned perceptions of academic rigor in Prince George's County secondary mathematics (grades 6–12) classrooms during the time of crisis, such as the COVID-19 pandemic. Academic rigor has implications on the outcomes of student engagement. The application of academic rigor in teaching is not simply individualized, it impacts all students collectively (Culver et al., 2020). Understanding Culver's writing can also assist secondary teachers in focusing on academic rigor levels while developing tasks that elevate student engagement levels (Cooper, 2014). The alignment of the perceptions of the teachers and administrators on academic rigor also has an impact on how the administrator evaluates the performance of individual teachers. Educators can benefit from the study because the COVID-19 pandemic has introduced distance (online) learning to schools in Prince George's County. With the shift to distance learning due to the COVID-19 crisis, the study can provide a blueprint for

future educators on developing rigorous tasks, said to have an impact on student outcomes, should educators be forced to move to distance learning in the future (Reynolds et al., 2020). In addition, district leaders can benefit from the study by analyzing the dialogue and directives from administrators to teachers regarding lesson planning, seeking for calibration of the instructional lenses between both groups, thus ensuring the continual growth of students during crisis times.

Audience

The audience of the study was district superintendents, principal supervisors, and other school-level administration. The audience also included teacher union representation to collaborate for academic calibration on the evaluation rating of teacher effectiveness. Having a target audience of district-level leadership assisted in the decision-making in terms of future social, academic, or educational crises. In addition, archiving this work being done in the current COVID-19 pandemic can become a building block for future studies on the topic, assisting in preparing for another global crisis, should it arise.

Another audience were the parents of school-age children. During the COVID-19 pandemic, students were forced to stay home and convert to online learning. This decision was suddenly pushed on parents who may or may not have a substantial educational background themselves. The information within the study gave parents insight into the planning and preparation of teachers and administrators. Being provided with this information, a parent, while the student was home on distance learning, can see ways to assist the students' academic progress.

Specific Leadership Problem

The specific leadership problem was that school district leaders have not effectively communicated the expected application of and calibrated understanding of teachers of academic rigor to teachers and administrators in Prince Georges County secondary mathematics (grades 6–12) classrooms during a crisis, specifically the current COVID-19 global pandemic. Since the COVID-19 pandemic has caused leadership to introduce distance learning on virtual platforms to Prince George's County for the first time, educators can benefit from an analysis of the application in mathematics classrooms. The online platform used to facilitate virtual learning was the Google Suite of applications (Libby, 2021). In Libby's writing, she annotates the first usage of online platforms as a tool for educating students during the distance learning process.

This shift to distance learning during the crisis, provided a starting point for future educators on the development of rigorous tasks, should a move to distance learning be required in the future. In addition, students in each classroom can benefit from the study because secondary teachers' and administrators' instructional lenses can begin to be calibrated to ensure that students are college and career ready. Theoretically, alignment of the teachers' and administrators' perceptions of academic rigor can positively impact student educational outcomes (Reynolds et al., 2020).

The specific beneficiaries of the study were school district-level superintendents and educational decision-makers. District level decision-makers can use this study to analyze the possible mistakes made during the COVID-19 pandemic, in terms of the communication of expectations, thus making informed decisions in the future. As a possible example, school district leadership can require that school administrators and teachers utilize a guide, such as

Webb's Depth of Knowledge (2002) to measure and analyze the levels of academic rigor required by the student tasks during times of crisis. It is hoped that the focus of the teachers and administrators on the levels of academic rigor, in times of crisis, for student lessons can assist in continuing their academic growth.

Purpose of the Study

The purpose of the study was to describe and explore the possible alignment between teachers' and administrators' perceptions of academic rigor in secondary mathematics classrooms in Prince George's County during a time of crisis, specifically the COVID-19 pandemic. The COVID –19 pandemic caused a change in the delivery of instruction to students beginning March 13th, 2020 (Libby, 2021). School districts and students needed to engage in distance learning. Distance learning meant that the students would participate in classroom activates from home, while teachers provide lessons through internet-based platforms (2021).

Local educational agencies in Maryland were forced to shift the delivery of instruction to an online distance learning model for all its secondary students (Reynolds et al., 2020). The focus of this study is on the alignment of the administrators' and teachers' perceptions on academic rigor due to the restrictions caused by the COVID-19 pandemic. The qualitative data from the study showed if alignment exists, thus allowing the leadership to see the quality of instruction the students received during the pandemic (Thompson, 2014). In addition, this data can inform administrators of possible feedback opportunities and professional development for teachers on the planning and delivery of lessons. These opportunities can be targeted to specific potential instructional gaps developed from their perceptions of academic rigor.

Methodology and Research Design Overview

The research questions called for a basic qualitative study using coding, thematic, and comparison analysis approach to gather and retell the data of secondary mathematics teachers and secondary school administrators in Prince George's County, Maryland. These testimonies can inform future educational leaders of the state of the field during the global COVID-19 pandemic, thus assisting in the decision-making process should future crisis arise (Sawchuk, 2020). The questions were provided in semi-structured interviews, and a coded interpretation of the outcomes were used in a thematic and comparison analysis. The analysis and the participants' data was used to derive their overall perceptions of academic rigor as teachers and administrators. These perceptions were analyzed to see if alignment exists and the possible impact of student learning.

Both the secondary mathematics teachers and the secondary administrators were interviewed individually. The assumption was made that each participant was answering based on their experiences in their current school setting. The use of the perspective of all participants in their environment was critical because the focus of the study was the participant's perception during the current COVID-19 pandemic. Each participant was interviewed about their perceptions of the application of academic rigor during the time of crisis and the expectations of the said application during times of non-crisis.

To accomplish the goal of the study, a sample of 3 secondary mathematics teachers and 4 administrators in Prince George's County were be interviewed. These teachers and administrators met the following criteria, a secondary mathematics teacher during the school year 2020–2021 during the time of the COVID-19 pandemic, with two or more years'

experience, inclusive of the 2021 school year. The administrators have served in the capacity of monitoring and formally observing teachers during the 2020–2021 school year, again during the time of the COVID-19 pandemic. The use of these criteria ensured that the individuals being interviewed have experience in teaching and observing during and outside of the pandemic.

The teachers and administrators were interviewed on their perceptions and observed application of academic rigor in mathematics classrooms in semi-structured interviews with guiding questions. Their answers were recorded, transcribed, and coded to find common or differentiated themes. It was hoped that additional information that can be used for recommending future research also emerged during these interviews. The data was summarily organized to retell the story to address the research questions.

Coding software, such as Dedoose, assisted in categorizing the interview responses and finding themes or trends in the qualitative data. Using this software, the responses of the participants were categorized into themes that assisted with the analysis. The questions were of mixed variety, such as open-ended and yes or no, and constructed responses. The study was conducted in Prince George's County, Maryland, in an urban school district, directly outside Washington, D.C. The school district services over 138,000 students of various races and social-economic backgrounds. The county's educated population is 34 high schools, inclusive of alternative and charter, 25 middle schools, and 153 elementary schools, of which 25 have 6th grade housed in an elementary school building. The study consisted of 3 secondary mathematics teachers and 4 secondary school administrators (Prince George's County, 2020). There was convenient access to the school district where the sample educators were located to gather data for the study. However, for the study to be completed in Prince George's County,

the Department of Research and Evaluation of Prince George's County randomly selected, based on the provided criteria, the schools in which the research could be completed.

Based on this data, the district services students that are on opposite ends of the social-economic spectrum. As a result of the random schools selected for the study by the local educational agency, the sample was not skewed by socioeconomic status, and teachers in schools from the three (upper, middle, and low) income areas were interviewed and included in the study. The number of teachers interviewed was one teacher per school. In addition to the teachers, each principal or assistant principal of the 4 schools used in the study were also interviewed.

Research Questions

The following questions gathered the teachers' and administrators' perceptions of academic rigor in secondary mathematics classrooms schools. RQ1: What do stories of teachers and administrators reveal about their understanding and of levels of rigor in secondary mathematics classes? RQ2: Is there alignment between the teachers and administrators' perceptions of academic rigor during times of crisis, specifically, the COVID-19 pandemic? Subsequent questions in the interviews led to gathering more information about how the teachers and administrators used academic rigor to aid the progress of their students.

The teachers were asked to describe the application of how academic rigor is applied in their classrooms and lesson plans. Teachers were also asked to provide specific examples, if possible. The specific examples included pictures, sample lesson plans, or sample activities provided to students. This data provided evidence to support the subject's understanding of academic rigor, of which an analysis led to the participants' perception of rigor. The

administrators were asked to provide specific examples of their observations of the application of academic rigor by the teachers they have observed. Interviewed administrators were also asked for examples of feedback that has been provided to secondary mathematics teachers directly relating to the application of academic rigor in teacher planning or classroom activities, if possible. The inability of the teacher or administrator to provide evidence via examples toward application of academic rigor was counted as data of the non-usage of the academic rigor in the classrooms. The non-answer of the educator became the data for the study. The goal of the questions was to gather the stories and perspectives of both groups of educators, to assist in addressing the problems with district leadership and the communication of the expectation of academic rigor through school districts during times of crisis.

Study Limitations

The study contained several limitations. Those limitations included time, economic constraints, and comfort of the participants. Participants in the study answered questions about their schools, administrations, and staff. As the participants were all employed in Prince Georges County, all subjects were assured of confidentiality. Participants may choose not to answer specific questions, and this can limit the study. A further limitation is that the study contained questions that focus on the math curriculum. Although the results are expected to be able to be applied to other subject areas, the use of one content is a limitation, nonetheless.

As all participants were under stressful times since the survey was conducted during the current COVID-19 global pandemic, some teachers and administrators may have had life alerting experiences during the pandemic, and the interviews may trigger uneasy thoughts. The small number of participants was a limitation, as using a more sizable number may provide more

varying perceptions. The current sample size was selected to ensure the timely completion of the study. Further limitations can include the interpretation of the participants' stories to derive their perspectives. The researcher was required to code and interpret the responses of the participants, which can also contribute to the limitations of the study.

To mitigate the limitation of interpreting the responses by the participants, techniques such as word repetition and key words in context were used. Word repetition refers to the reader of the text formally analyzing consistent words that are used by multiple participants (Ryan, 2003). Other techniques that were also used were titled, keywords in context, where the reader systematically searches in the cortex to find all instances of a word or phrase (Ryan, 2003). The use of these techniques among others allowed the researcher to align similar ideas of the participants, thus informing the research question of the alignment between teachers' and administrators' perspectives.

Definitions of Key Terms

Academic Rigor: A highly debated term in the educational community; however, in the study context, the term refers to the cognitive levels that an academic performance task requires to be completed by a student. A process of actively learning meaningful contacts with higher order thinking and the appropriate level of expectation (Rose, 2020).

Academic Task: Academic tasks can be defined as activities utilized in a classroom for students to focus on a particular skill or standard within the subject area. Although traditionally, academic tasks and engagement have been measured in a static form of a student being engaged or not engaged, the current research investigates intellectual task engagement as a meta-construct with various levels of engagement within academic tasks (Parsons et al., 2018).

COVID-19: SARS-CoV-2, as it is medically defined, is a family of single-stranded positive RNA viruses that infect mammals and cause respiratory and intestinal diseases also known as coronaviruses (Sansonetti, 2020). It was responsible for the global COVID-19 pandemic, which was a plague that caused millions of deaths around the world, effectively closing the global economy in the process. The peak of the pandemic was from March 2020 to June 2021 (2020).

Perception: A result of becoming aware of objects' relationships and events by means of the census, which includes activities such as recognizing, observing, and discriminating these activities enable organisms to organize and interpret the stimuli received into meaningful knowledge and act in a coordinated manner (APA, 2020).

Secondary Administrator: The term secondary administrator was defined as a person who was currently the principal, assistant principal, academic dean, or wing coordinator or the Prince George's County Public School System. Each of these positions serves in a supervisory role of teachers and formally observes teachers for pedological growth and evaluation in grades 6–12.

Secondary Teacher: Secondary teachers are defined as current academic instructors of mathematics in grade levels 6 through 12. Prince George's County Public Schools separates middle school students, grades 6 through 8, and high school students, grades 9 through 12, into different schools. However, secondary education in Prince George's County is classified as all grade levels over fifth grade. Therefore, teachers and administrators in both middle and high schools are eligible for the study.

Summary

The purpose of this qualitative study was to explore the perceptions of the applications of academic rigor in Prince George's County secondary mathematics classrooms by teachers and administrators during a time of crisis, specifically, the viral COVID-19 global pandemic. In addition, the study contained archived events of the COVID-19 pandemic from an academic perspective, thus providing opportunities for future educational leaders to plan for other crisis times. The COVID-19 pandemic suddenly fell on local education agencies, causing a rush to plan and execute distance learning in a limited window.

Students in Prince George's County secondary mathematics classrooms had historically scored lower than their peers in neighboring counties in the state of Maryland on state-mandated standardized assessments. The results of the study may highlight opportunities for growth in teacher and administrator practice of daily instruction. The study contained research that can assist educational leaders in uncovering gaps in planning between teachers and administrators in Prince George's County, thus changing educator practice and higher student academic achievement.

CHAPTER 2: LITERATURE REVIEW

The following research was used on administrators' and teachers' perceptions of academic rigor in the secondary classrooms of grades 6–12. As an instructor, Wu found several problems with the transition from the classrooms to distance learning. Those problems included but were not limited to emotional, psychological, pathological, and technological challenges that manifested themselves (Wu, 2020). This topic was developed from the growing need to have more effective education and instruction in Maryland. Due to the ever-changing economy and increasing competition for employment, the demand for authentic, high-quality teaching and learning for the country's future is paramount.

Principals and educational leaders' primary responsibility was to ensure that teaching and learning are at the forefront of the priorities of schools and school districts. The alignment of the perceptions of academic rigor of educational leaders and the teachers on the front-line is critical to developing comprehensive plans and curricula that prepare students to meet the state-mandated requirements and the rigors of college and careers (Webb, 2007). This section of the study contains the research on teachers' and administrators' perspectives on academic rigor with the hypothesis that an increase in the alignment of the levels of rigor in classroom activities leads to higher student academic achievement, especially in the times of crisis such as the COVID-19 pandemic. The spread of the COVID-19 virus caused educational institutions to temporarily close and implement mandates that are aimed to keep students safe to return to school buildings (Shdaifat, 2020). Shadafat's conclusion is that students can be successful in a distance-learning format. Teachers are trained in using virtual tools that focus on academic rigor with the alignment of the teachers' and administrators' instructional lenses.

In a study completed by Hess, the rubric that was used to measure teachers' perceptions and implementation of rigorous activities in the classroom was Webbs' Depth of Knowledge (Hess et al., 2009). Norman Webb is a research scientist at the Wisconsin Center for Educational Research and created the Depth of Knowledge (DOK) tool, which can measure the complexity of cognitive task (Webb, 2007). Webbs' DOK is a precise tool comprised of four levels describing high order thinking skills. Webb's DOK uses aspects of Bloom's Taxonomy (1956) to rate various levels of rigor in classroom activities.

Description of Webb's Depth of Knowledge

The first level of Webbs Depth of Knowledge contains descriptions of activities that cause students to recall information to complete the task (Hess, 2009). These questions and activities are typically answered with direct fact-based answers, and information is explicitly stated in the text. Level 1 questions can typically be answered with one word or short phrases. These questions and activities can call students to recall information directly cited in a text or simple calculations. Level 1 is the lowest level of questioning on the DOK scale. Level 1 questions tend to elicit predetermined responses, which becomes a norm of recitation. Examples are a student using multiplication facts to answer questions such as 'What is three times four?' (Eddy & Kuehnert, 2018).

Level 2 of the DOK tool contains descriptions of lesson tasks or activities that cause students to apply skills in a real-life context (Hess, 2009). An example of various levels of academic rigor would be a class of students studying the meaning of the area of squares and rectangles (multiplying length and width of the shape) by laying a carpet in a room as a classroom activity. Although the students use multiplying length and width skills, they also see how the skills

apply to the world in laying the carpet, thus increasing the level of rigor. In contrast to group 1 questions and activities, Dillon argues that level 2 questions allow for dialogic discussion. Dialogic discussion calls for higher-order teacher questions that emphasize critical thinking skills connected to peer statements (Eddy & Kuehnert, 2018).

Level 3 of the DOK scale begins to ask students to analyze information presented to them so that a reader can make sense of it (Hess, 2009). In other words, analysis causes students to break large ideas and topics into smaller ones. This analysis process is one of the most frequently used processes to rate students' proficiency in a subject area via the state's Common Core assessments (Webb, 2007). Along with the analysis, students are asked to generalize and connect ideas while focusing on reasoning, planning, and supporting student thinking (Webb, 2002).

Level 4 of Webb's DOK (Webb, 2007), the synthesis skill, requires students to take ideas from multiple texts or sources and combine them into one view justifying their claims. An example of an academic task where synthesis skills are needed is when students are asked about an author's purpose in a section of text and to find other passages/books to support their claim where the same purpose can be identified. Measuring lesson activities ranging from lowest (level 1) to highest (level 4) ensures that a student has demonstrated proficiency in the skill(s) they are engaged in. Applying DOK to lesson planning and instructions allows students to develop critical thinking and problem-solving skills and the conceptual understanding needed to be successful today (Barber, 2018). Barber's recommendation of using the DOK model to rate lesson planning activities can encourage further learning and deeper conceptual understanding among the students in the classroom.

Application of the Depth of Knowledge Tool

Several school systems, including those in Prince George's County, Maryland, have adopted Webb's DOK tool to measure academic rigor in classroom activities, teachers, and administrators. This step is used as the building block for the administrative observation of teachers. The district usage of this tool is in hopes of leading to higher student academic achievement.

The research contained in the following articles displayed the connection between teachers, academic rigor, and the development of the achievement gaps. Wright-Maley completed a study on the teacher's perception of rigor in the classroom and how play-based activities assisted with the engagement and learning in two teachers' classrooms (Wright-Maley, 2016). The rigorous activities caused the students to be more engaged in the classroom activities. Based on the student discipline data, fewer students were directed to the Assistant Principals' office throughout the study. The study was expected to reveal findings that support the idea that students' engagement in different rigorous styles of learning reduces discipline problems and helps increase the retention of information. Throughout the study, the participants revealed their perception that play pedagogies are challenging but invaluable tools with which to approach teaching (Wright-Maley, 2016). The study hoped to demonstrate that finding alternative measures of cognitively engaging students in rigorous teaching styles pushes deeper conceptual understanding for students.

Increasing rigor in the classroom has several implications on student learning from a teacher and administrator perspective. The global economy demand for skilled workers is consistently growing, and students in the U.S. must be prepared to fill said positions. Keller's

reframed idea of rigor as deep, inquiry- and equity-based learning that supports students in achieving their full potential fits well into this broader context and has the potential to accelerate and expand these trends (Keller, 2018). For example, the practices associated with the reframed ideas of academic rigor emphasize the crucial role of faculty and student interaction and innovations in assessment and learning within the classrooms. Keller's writing supports the viewpoint that teachers and educational leaders can prepare their students for the world with an increase in the levels of rigor utilized in the classroom. Keller goes into further detail in his writing to show why the focus on the U.S. education reform is so critical.

Literature on Impact of Application of Academic Rigor on Students

Changing the levels of rigor for the classroom activities is critical in the development of the students, thus preventing the achievement gaps from forming in the classroom (Blackburn, 2018). Blackburn has further suggested four tiers of intervention in the school that ends with the students reaching the same rigorous standards as their peers to prevent these gaps (Blackburn, 2018). She warns that teachers tend to lower the expectations of their students when they cannot meet the standards of the common core curriculum. This lowering of rigor causes a false sense of success in the students' and parents' minds. Students in these situations find themselves earning high scores while in class; however, once they can take standardized assessments, their scores are lower than expected.

Blackburn (2018) makes one final suggestion to prevent this phenomenon from taking place. While differentiating instruction can benefit students, a particular challenge is lowering the level of rigor for struggling students under the guise of meeting their individual needs. This can be prevented by adjusting tasks and activities while ensuring that those tasks and activities

are built on a foundation of rigorous expectations (2018). Blackburn's research (2018) supports that if teachers consistently supply students with rigorous tasks, they are more likely to succeed on state assessments. Furthermore, the more students engage in rigorous studies, the less likely they are to enroll in remedial classes in college upon high school graduation.

Academic rigor in the classroom is facilitated by actively learning and meaningful contact with higher order thinking at the appropriate level of the expectation (Rose, 2020). In Roses' explanation, the classroom level of thought and activities must align with the objectives and expectations of the curriculum. This alignment is planned out by teachers and supported through the lens of administration. This alignment continues into various employment fields, where the education and training of all students must match the rigors of the employment chosen. According to Rose, the planning and perceptions of these teachers in administration are being aligned directly on how well students are prepared for their future employment (Rose 2020).

While engaging the students in rigorous tasks, collecting data around said tasks becomes paramount. In a discourse concerning academic depth and rigor, in education, benchmarks and measuring academic rigor become a focal point in teacher and student education (Steyn, 2016). For teachers to implement strategies including those involving academic rigor, an infusion of these strategies must be in professional development or teacher education at the collegiate level. Teacher education programs need to be coherent and attest that those various instructional materials are used to develop the activities used in educating the teachers and the students in the classrooms. (Steyn, 2016). Steyn argues that the value of the teachers using rigor analysis in their lesson planning leads to an impact on the student outcomes.

In the recognition that teachers and administrators must turn to online instruction, they must be aligned to impact instructional practices during the COVID-19 pandemic (Reynolds et al., 2020). Reynolds argues that the pandemic must not stop the students' academic growth. The alignment of teacher and the administrative perceptions can facilitate the continued academic development for the students, using writing prompts and exercises as high-level tasks. Reynolds writes that writing assignments promote conceptual learning and deepens student engagement with the subject matter. Also, writing assignments can be incredibly flexible regarding its online implementation (Reynolds et al., 2020). Finally, these writing assignments can show that academic rigor can remain elevated during global or local crises.

Summary

The reviewed body of literature strongly indicates that academic rigor is a critical component in planning lesson activities for students. This alignment between the rigor levels of the requirements of the activities and rigor of the objective or outcome must be planned by the teachers and monitored by the administration. This monitoring, alignment and cohesion, according to the literature, can have productive outcomes for students. It is noted in Shdaifat's study that teachers' perceptions can change based on the planning circumstances, to which crisis scenarios may also have influence. However, teachers and administrators having a calibrated alignment based on the research means the students have more opportunities to engage in rigorous quality instruction during their crisis, such as the COVID-19 pandemic, not to disrupt their academic progress.

Crises can cause educators to alter their planning process, which directly impacts the students they teach. Thus, further demonstrating the need for the perceptions of the

administrators and teachers to be aligned, ensuring the quality of education dramatically affects the students they serve. In addition, this alignment benefits the students by establishing clear expectations among school district employees.

The research on academic rigor during times of crisis, global or local, demonstrates that consistency with the individuals implementing creative academic tasks (teachers) and the individuals monitoring the tasks (administrators), can impact student outcomes. For example, the global pandemic of COVID-19 created an opportunity for teachers and administrators to calibrate their instructional lenses, thus pushing high order thinking skills forward with the students. In addition, using measurement tools such as Webb's DOK, Bloom's Taxonomy, Cognitive Demand, and others, provided a blueprint for administrators and teachers to use to ensure the focus and perceptions of academic rigor were aligned.

In completing academic tasks even in a digital distance learning space, awareness of expectations is critical in the student's intellectual development (Rose, 2020). According to the literature, expectations are developed based on a precise alignment of administrators' and teachers' perceptions of the quality of the academic task provided to the students. This reference alignment can lead to further academic growth of the students in the classroom (Rose, 2020). The alignment was a focus during the study.

CHAPTER 3: METHODOLOGY

The research for the study was completed in Prince George's County, Maryland, with administrators and teachers in secondary schools. Secondary schools consist of middle schools, grade levels 6 through 8, and high schools consist of grade levels 9 through 12. The study was conducted using coding, thematic, and comparison analysis approach and the data consisted of stories describing the relevant experiences of the teachers and administrators. These stories were summarized through a coding process and then retold from a third person to develop suggestive evidence that would address the research questions.

The participants were teachers and administrators, interviewed on their perceptions of academic rigor and application during the COVID-19 global pandemic. The pandemic changed how education was provided to the students in Prince George's County; therefore, it was analyzed to understand the impact of these teachers' and administrators' perceptions on academic rigor on the student activities, planning, and instruction provided to students. The data provided during the study also provided insight into teacher professional development throughout the mathematics department of the school district.

With the change of delivery of instruction from in-person to distance learning (Libby, 2021), the study contained data, that upon analysis, pointed to the impact of the educators' perceptions on the tasks students engaged in during the pandemic in Prince George's County. The leaders in the school district's mathematics department can use this data point to see if it is a possible root cause for lack of success on district-wide or state-mandated assessments. Such analysis provides one data point for educational leaders to measure the impact of the distance learning process on said student outcomes.

Upon completing each interview, the data collected was coded for interpretation and then used in a thematic and comparison approach to analyze findings. Data from the accounts of teachers and administrators currently in the field provided insight into the experiences of educating students through the COVID-19 global pandemic. During this time of crisis, the landscape of education changed with the introduction of distance learning in Prince George's County. Teachers and administrators in Prince George's County were not previously required to teach remotely nor had operational capabilities to complete such a task. The school district leadership and administration implemented a one-to-one Google Chromebook technology program to lead the virtual distance learning for all students (Schools, 2020). The teachers' and administrator's qualitative data from this experience was coded for use in the study.

Research Method

The research method of this study was qualitative with the use of one-on-one interviews. The study called for the telling of stories by the participants and an analysis of those stories to derive the perceptions of academic rigor of the participants. This description of the experiences of the participants fits the qualitative research method. The experiences of the participants were gathered through interviews conducted over the web-based software application zoom.us.

The qualitative approach is appropriate when human behavior is being studied and inquiring how humans feel. As this study is focused on human perceptions, a qualitative approach is appropriate. The responses of the participants required considerable analysis and coding to derive their perceptions from the testimonies and stories told during the interviews. During the study, little to no numerical data was utilized from the participants, therefore rendering a quantitative approach appropriate for this study.

Research Design

The research design of this qualitative study required the gathering of data from secondary mathematics teachers and administrators in Prince George's County, MD. Therefore, a basic qualitative study using coding, thematic, and comparison analysis was utilized as the research design and interpretation of the data collected. The research design was chosen because it provided the opportunity for the participants to directly state comparisons, in terms of the application of rigor, of their experiences of teaching during times of crisis and non-crisis. From those conversations and interviews, the participant's perceptions were derived, thus displaying any possible changes. In addition, the study included an analysis of the testimonies of participants about the non-crisis use of academic rigor by current secondary mathematics educators and administrators.

Participants interacted with multiple questions of varying types that included open-ended and yes or no responses. The participants were allowed to expand upon each of their answers in highlighting their perceptions of the use of academic rigor during the COVID-19 global pandemic. Each interview was expected to last 45 minutes at the end of the school day. Teachers and administrators were given the option of choosing a convenient time for their schedules as the school districts are still navigating the COVID-19 global crisis. Although each interview was expected to last 45 minutes, should the participant choose to provide more information going over the time limit, an additional 15-minute window was added to each interview.

The interviews were conducted over virtual software zoom.us. The teachers and administrators were asked about their backgrounds in education, their perceptions of academic rigor, and the use of academic rigor in the virtual classrooms during COVID-19. In addition, the

participants were asked about their specific role and their impact on student achievement through planning, observation, and instructional design during a global pandemic.

The interviews were scheduled for 45-minute time slots and short breaks were allotted for participants if needed. Participants were asked to eliminate any distractions; however, accommodations were made if emergencies arose. School administrators were asked to schedule their interviews after school hours, to allow an opportunity to focus on the questions. Interviews should not exceed a one-hour period.

Should the interviews begin to exceed the 45 minutes time limit due to participants having information that saturates the time of the interview before completing the questions, the participants were asked for another timeframe so that the interview can be completed. The participants were not provided guiding questions to protect the data and collect natural responses. The interview responses were noted in the data collection, should the interview take multiple sessions.

Individuals telling stories or detailing life experiences is a legitimate model in educational research (Ollerenshaw & Creswell, 2002). The interview on these experiences provided direct insight into the educators' perspective and perception on educating secondary students during a global pandemic. These interviews were then used to suggest actionable steps that can be taken in future research, thus further preparing educators if the county is faced with another crisis.

Participants

The study took place in Prince George's County outside of the Washington, D.C. border. The district is comprised of 138,000 students and over 19,000 employees. In serving such a vast array of students, Prince George's County has divided the general education model into three

age-appropriate school building types. Elementary schools house students from pre-kindergarten to grade 5, middle schools, students from 6th grade to 8th grade, and high schools with students from 9th to 12th grade (Schools, 2020). The county is comprised of 212 academic school buildings as well as 15 administrative central office buildings. The breakdown of the school building types is as follows: 34 high schools, 25 middle schools, and 153 elementary schools. It is to be noted that 25 of the elementary schools house the 6th-grade secondary educational program. These 25 elementary schools are paired with middle schools that begin with students in the 7th grade (2020).

Prince George's County contains one of largest school systems in Maryland and therefore, serves students of all economic backgrounds. The annual income of families in Prince George's County can range from below 15,000 dollars to around 250,000 dollars. The county thus receives federal Title 1 funding for the lower school economic impact areas. In addition, title one of the Elementary and Secondary Schools Education Act appropriately grants neighborhoods with high concentrations of low-income students funding for supplemental programs (School Funding, 2011). These funds provide equal opportunity and access to materials in lower-income areas of each school district in the county.

The participants in the study were 3 teachers and 4 administrators in public schools, working in secondary grade levels in the mathematics department. Secondary school grade levels are defined as grades 6 through 12. Therefore, these participants can include 6th grade mathematics teachers housed in the elementary school buildings. Each participating educator worked during the global COVID-19 pandemic and was responsible for either directly educating students or supervising teachers in the school buildings. Priority for the study was given to teachers and administrators with mathematics educational backgrounds, defined as graduating

with an undergraduate or graduate mathematics education degree. Although the priority was to interview staff with mathematics backgrounds, teachers with general education degrees and certifications were eligible to be interviewed. Ultimately, the three teachers interviewed were certified in mathematics with mathematics backgrounds. Mathematics was chosen due to the direct nature of the subject area and clarity with the application of academic rigor. Mathematics provides direct and clear descriptions of activities that would be deemed academically rigorous. While other subject areas, such as English or Literature can have directions for activities that are up for interpretation, mathematics by nature is direct.

These teachers and administrators met the following criteria as participants in the study: A secondary mathematics teacher during the school year 2020–2021 during the time of the COVID-19 pandemic and two or more years' experience, inclusive of the 2021 school year. These teachers were chosen because they would have the ability to compare their teaching experience in the classroom during the pandemic with distance learning, to their traditional teaching experience before distance learning. The administrators have served in the capacity of monitoring and formally observing teachers during the 2020–2021 school year, again during the time of the global COVID-19 pandemic. Similarly, the administrators in the study were also able to compare the experiences of observing classrooms during the pandemic in a distance learning virtual space to the differences of the application of rigor in a traditional classroom before the pandemic.

The participants are described as follows; Participant 1 was a female African American administrator for six years in a high school with areas of responsibility covering the mathematics department of said school. Participant 2 was a female African American administrator covering a middle school mathematics department and has been in the position for three years. Participant 3

was an African American male high school administrator with over 20 years of experience in the field. Participant 4 was an African American principal with eight years of experience in his current school. As a principal, Participant 4 has the ultimate responsibility of every department in the school building. Participant 5 was an African American female middle school mathematics teacher who has been in her position for five years. Participant 6 was an African American female high school mathematics teacher, who has been in her position for 22 years. Participant 7 was an African American middle school female teacher who has been in her position for 20 years and has also had experience in coaching new teachers to their mathematics department.

A total number of 3 teachers and 4 administrators were interviewed for consistency in the data and perspectives. Samples were used as focus groups with personal interviews, for participatory, observational, and ethnographic work. (Shorten & Moorley, 2014). Moorley writes that a small sample number allows the researcher to explore the in-depth feelings, experiences, and beliefs of the participants (2014). The use of 5–7 educational employees was supported by Moorley's writing.

Prince George's County as a district was chosen due to the convenient access to the needed sample of teachers and administrators to complete the study. The access to the teachers and administrators was convenient due to the researcher's employment status with the district as well. However, the participants within the district were randomly chosen based on the criteria of the study as explained previously. The parameters of the study were presented to the district's Research and Evaluation Office, and the office provided the random eligible schools and principals for the researcher to seek permission to be interviewed. Although a delimitation of the study was teachers and administrators under the direct supervision of the researcher, as a current sitting principal, colleagues in other schools within the county were eligible participants.

The use of a wide range of socioeconomic backgrounds should balance the data collected during the study. The study began with interviewing the secondary mathematics teachers in each school building then moved on to the administrative staff. The principals of each school building selected teachers that fit the criteria of the study, having taught for two years in their current subject area with one of those years being during the 2020 COVID-19 global pandemic. Each teacher within the mathematics department of the school, which fit the criteria, had an equal opportunity to be selected to be interviewed. The selected individuals were the first to respond and schedule the interview.

Priority of the administrative interview was given to the school principal; however, assistant principals of the mathematics departments in each school were also invited to participate in their absence. The perspectives of the mathematics administrators were used in comparison to the teachers of mathematics in each of the schools surveyed. Should prospective teachers or administrators not consent to be interviewed, resulting in a lack of participants, the Prince George's County Office of Research and Evaluation would have been notified of this, and thus, other school buildings that fit the criteria of the study (secondary comprehensive high schools) would be randomly selected. There were no teachers or administrators who openly did not provide consent to the interview, however there were schools (teachers and administrators) that did not respond to the invitation. It was hoped that the confidential agreement of the interviews provided a sense of security for all participants that did respond to the request.

Instruments

As the study followed a basic qualitative methodology using coding, thematic, and comparison analysis, a set of guiding questions located in Appendix A was utilized in the interviews. The questions in the interviews were open-ended and allowed the participants to

articulate their narratives of their personal experiences while teaching during a global COVID-19 pandemic. The qualitative data collected from the participants were audio-recorded and transcribed for coding and analysis. A subtopic covered in the interviews included the participants possibly providing evidence of the classroom lesson plans as well as informal observation feedback in the case of administrators. These pieces of evidence and data were collected on virtual hard drive files to keep information private and confidential. A test run of the interview questions was used with one teacher and one administrator under the direct supervision of the researcher. Those sample test run of questions were not be used in the official data of the study; however, the feedback of the test participants would have been used to adjust the interview questions. The questions within the sample interviews were clear enough to be answered by the participants. Based on the responses of the test subjects, it was determined that the used set of questions would address the research question. Zoom was used to conduct interviews and recordings. Web application software such as Dedoose was used to code the interview responses upon completion.

Data Analysis Methods

The qualitative data from each interview was analyzed through coding using the software program Dedoose. There was a total of 7 completed interviews, inclusive of teachers and administrators. Each interview was conducted one on one between the participant and the interviewer. The coding of each interview focused on highlighting common themes of the perception of academic rigor from each teacher and administrator's perspective during the global crisis COVID-19. The themes were analyzed to find an alignment of the perceptions and how the said alignment does or does not affect the students' performance outcomes. The coding of responses emerged from the data collected from the participants. As the participants told their

stories and relived their testimonies and answered the questions, codes emerged from the repeated terms and vocabulary used by the participants. Those codes were categorized and analyzed by their meanings.

Presentation of Findings

The study took place in four Prince George's County, Maryland public comprehensive secondary schools. Each of the schools' populations attended based on the students' boundary established by the local school system jurisdiction. The schools serve a total of approximately 4000 students, employing approximately 250 teachers with varying levels.

The participants at schools were from neighborhoods of various social-economic backgrounds. One school is in an affluent area in the county serving students with an average household income of $113,000. On the other hand, one school in the study serves students with an annual house income of $65,000. These schools were chosen to mitigate the impact of social economics on the results of the interviews.

To collect the data as the researcher, an email was sent to the local educational agency (LEA) that governs the selected schools. The request included all relevant information for the study. The study's proposal was sent to the school district and evaluated by its research and evaluation department. Further, the department evaluated the proposal for any possible ramifications for the study being performed within the district. The district's approval was provided with the conditions that the research provided to the district upon the completion of the study, and the research was to be completed with the approval of each school principal and outside of school hours. The final requirement of the district was that all materials and research must be submitted to the district's research and evaluation office within one month upon the completion of the study.

Limitations

The limitations of the study included but were not limited to the abbreviated time constraints and the possible reluctance of the participants. In addition, as the participants are employees within Prince George's County, they may not be willing to answer specific questions about their schools or their instructional practice. Therefore, the cooperation of the participants may lead to a limitation of the study. The semi-structured interviews took place via digital platforms such as Zoom with a recording feature. However, the transcription of the digital media may not capture each word spoken by the participants, and thus, editing was required in the transcription. In addition, the interviews of the study took place during the COVID-19 global pandemic, which can cause psychological trauma on some teaching staff. The study contains information from the interview question responses of school-based teachers and administrators with limited time and availability. The current sample size of the study has been strategically chosen to ensure the timely completion of the study. The interviews were limited to a 45-minute time period. Should the interview not get completed in one session, a second session was be requested with a 48-hour time frame to complete the interview. Participants were not provided questions, as to respect the fidelity of the interview and protect the data.

Delimitations

The study is being completed by a current sitting school principal in Prince George's County; therefore, current teachers under direct supervision was a delimitation. These teachers and administrators were not invited to participate in the study. This teacher group was used as a delimitation to prevent any conflicts of interest or influence over teacher responses. All teachers and administrators participating in the study were voluntary. All participants were assured of the confidentiality of their identities. All names and employment locations were not to be written

within the study and remained confidential. The study was conducted within public schools using teachers and administrators of grades 6 through 12 mathematics classrooms. The study took place during the 2021–2022 academic school year during the global COVID-19 pandemic; therefore, the findings and results may not necessarily generalize to other subjects, locations, or future periods.

An additional delimitation of the study was the nonparticipation of children and students in the study. The research focuses on the perceptions of academic rigor between teachers and administrators; however, the study does not include the students' perceptions in the secondary classrooms. The students may offer a uniquely perspective and could influence the results of the investigation. However, due to the state protocol restrictions of the COVID-19 pandemic and the time constraints of the study, the students' perspectives were not included.

Summary

To summarize, the basic qualitative study using coding, thematic, and comparison analysis was utilized. The study contained research on the perceptions of academic rigor between secondary teachers and administrators, during a time of trauma and global crisis, in Prince George's County, MD. These perceptions were developed from the perspective and data of the educators, working and operating during COVID-19 global pandemic. The qualitative study was chosen to provide participants with the opportunity to express their teaching experiences during the COVID-19 pandemic and compare them to previous non-crisis times in education. It is hoped that the results of the study be applied to future times of crisis for educators and lead to an operational change in instructional practice from school district administrators and executive leadership.

The data analysis was compiled from the interviews and is intended to be applied to future related topics. The participants provided their testimonies and stories of their perceptions of academic rigor during a time of crisis. These stories were then analyzed to find common themes and be coded to reflect said themes. These themes were then w gathered to derive the participant's perceptions of academic rigor. A focus was placed on finding an alignment between the administrator's and teachers' perceptions and stories which can then be utilized to assist students in future studies.

As a subsequent result of the study, it is hoped that school district leadership will establish a plan of action that can be implemented should another time of crisis arise where students must be separated from their school buildings. School district leadership had the opportunity to analyze the findings of the study and make improvements for planning for students in the future during crisis time, should schools need to be closed in the future.

The study contains data that comes directly from the teachers and administrators in the field during a global pandemic. These individuals laid the groundwork for the educational virtual classroom experiences and opportunities that the students engaged in during the pandemic. Their stories and experiences, along with the research should be valuable in future planning for district level administrations.

CHAPTER 4: FINDINGS

Chapter 4 contains a presentation of the results of the study on Perceptions of Academic Rigor between teachers and administrators in Prince George's County secondary mathematics classrooms during times of crisis. A total of four secondary schools were represented in the study with an equal number of administrators and teachers except for one school, which only had an administrator participate. The interviews were conducted and designed to address the following research questions, RQ1: What do stories of teachers and administrators reveal about their understanding of levels of rigor in secondary mathematics classes? RQ2: Is there alignment between the teachers and administrators' perceptions of academic rigor during times of crisis, specifically, the COVID-19 pandemic?

Although the study was initially planned as a narrative study, the design had to be changed to a basic qualitative design due to the time constraints and difficulty collecting pairing teachers in administrators from each school. At the time of the study, the impact of the global pandemic caused significant restraints on educators' times in Prince George's County Public schools. Therefore, all planned teachers were not able to participate in the study.

To complete the study, the participants were interviewed based on fitting the criteria of being either a teacher or administrator in a secondary school (grades 6 through 12) and teaching or observing instruction in mathematics classrooms for a minimum of two years, with one year being during the distance learning COVID-19 pandemic. Each participant was interviewed via the web placed platform zoom.us. The interviews were conducted one on one, and distractions were minimized for these educators by conducting them after school, since circumstances and interruptions can change inside of a school building. Each participant was assured of the confidentiality of their responses and signed participant agreements ensuring that their

participation was voluntary and remained confidential on their end as well. Each participant also received the findings of the study so they can see the other respondents and results of the data. The results of the data were presented within Chapter 5 of the study.

Participants of the study can view their impact on future research on the perceptions of academic rigor in the future. The data included in the study was available to the district leadership as a perimeter for permission to complete the study. Should changes be made in the academic programs based on this research, the participants in the study knew that their responses were partially responsible for districtwide changes in the use or method of application of academic rigor in schools in Prince George's County.

Presentation of Findings

Each participant was interviewed based on eleven questions that were designed to provide insight into the participants' perception of academic rigor, based on their position within the school district. The interviews began with a school demographic question that asked each participant to state their position and the length of time they have served in their current capacity. The overall construct of the participants was five females to two males, four administrators to three high school participants and four middle school participants. The experience of the participants varied from two years to over ten years. One participant has been in their role for three years, two participants were in their roles from four to six years, one participant was in their role for seven to nine years, and three participants have been in their role for over 10 years. All seven participants categorized their ethnicity as African American. Each interview was conducted individually to ensure unbiasedness.

Participants were individually interviewed and asked a series of questions in order to answer the research question of what the stories of teachers and administrators reveal about their

understanding of rigor in secondary mathematics classes. These questions were intended for the participants to display their understanding of academic rigor and its application in their schools. The participants were not provided with the topic of conversation until the interview to minimize reviewing information prior to the interview.

When analyzing the responses to the question, "Can you give your brief understanding of the term academic rigor?", the participants mentioned several other synonyms to the term based on their individual understanding. Some of the terms used were cognition, workload, fluency, conceptual knowledge, and difficulty. The interviewed administrators tended to speak towards academic rigor begin defined as the cognitive thinking load being handled by students, while the interviewed teachers tended to emphasize the difficulty level of the work for the students and the way in which they can best deliver the content. One administrator participant stated, "Rigor means the workload, and it's not necessarily the difficulty of the work. I think the messages out there that rigor should be embedded in instruction, but I don't think they're (teachers) necessarily showing them what that looks like." While with the same question, a teacher responded as follows:

> Students are put in situations where they're guessing, and they don't get that feedback. For academic rigor, it requires me, as a teacher, to give feedback, instant feedback, wrap around feedback, connecting dots. First and foremost, it requires me to have a connection and build a bridge of connection with student.

The teachers related their definitions of academic rigor to the connections they build with the students, as well as the content they provide. The phrase "higher-level thinking" was consistently used among both sets of participants; however, it was rarely defined. When defining academic rigor, the participants also frequently used the phrase "Type 1, Type 2 and Type 3" questions. This refers to the terms the school district's curriculum and instruction office use with employees. As one teacher participant stated, "The Curriculum Pacing Guide also has rigor in it.

I talked about fluency, conceptual knowledge, and real-life application. We cover those type one, type two, and type three questions in the math department." However, this connection was not made with all participants.

The next set of questions asked the participants whether they believed that academic rigor is currently or was applied in the classroom setting during the time of crisis. The participants had varying responses to the questions on the application of rigor in the classroom. One teacher participant stated, "I do believe that academic rigor can be applied in the classroom setting. I think that it requires one, teachers being able to know their students, identifying strengths and areas of growth."

However, another administrative participant said, "I believe they think they are, but again, I'm going to go back to my last response I'm not sure that they're clear on what rigor is and what that looks like in their instructional practice." These two participants interacted with the same students in the same school; however, they do not have an aligned perception of the application of rigor in the classroom.

The teacher's responses included different examples of academic tasks and how they accommodate various learning styles. One teacher participant stated that she allows her students to use manipulatives to respond to tasks, so the class can visually see the student's responses. Her explanation is as follows:

> If they use counters and they have red for negative, yellow for positive, then their mind can automatically see that in a testing environment. When we show them how to do it using paper and pencils, since they're not allowed to use manipulatives on assessments, they're able to draw a circle, shade in the red and keep the circle open for negative—I mean positive numbers.

The teacher participants also continually related the application of rigor to the planning they do as teachers for classroom instruction. One teacher participant stated, "I do plan for rigor. One of

the things that I've found is that students struggle with the foundational skills, which severely impacts the middle school classroom."

Another teacher participant replied with the following:

> I believe I do, but before I do an academic task, I do it myself because I need to know where some of the areas of pitfalls may be, in order to either meet our students where they are or challenge them for my advanced learners. Again, it's one of those, as a teacher, do it yourself. Before you provide any type of task, make sure you know the pitfalls the students may face so that you're able to challenge your students and provide that rigor.

The administrators' responses to the question of rigor being applied in the classroom were also consistent, as all but one administrator stated that they were unsure of whether teachers knew how to define academic rigor and how it is applied in the classroom. Specifically, during the distance learning portion of the school year, the administrators interviewed stated that the levels of rigor in the classroom activities were based on the need to find more engaging techniques in the virtual classrooms. Student attendance in the virtual classrooms became an issue for schools as numbers of students were absent from the virtual classes. Along with the absences, one administrator stated, "[During the distance learning it was] Challenging. Lack of student-to-student engagement. Learning in isolation, even though they were on the computers, on Zoom together, they would turn their cameras off, and they did the whole thing. It was learning in isolation."

The teachers' responses to the questions on the application of academic rigor in the classroom from their perspectives were also consistent. All teachers stated that that academic rigor was considered and applied in the classroom daily. The teachers' responses varied in their definitions; however, they all believed academic rigor was applied during each lesson in the classrooms in the instructional process. A teacher participant stated, "I do plan for rigor. One of the things that I've found is that students struggle with the foundational skills, which severely

impacts the middle school classroom." However, another teacher participant responded, "I do believe that academic rigor can be applied in the classroom setting. I think that it requires one, teachers being able to know their students, identifying strengths and areas of growth." The third teacher participant went on to elaborate:

> Academic rigor's definitely in the classroom setting by identifying the skills of the students and providing tasks that not only—that the students can complete the tasks, but tasks that allow them just to think a little further, a little harder, or just a little more to complete the task with fidelity.

The next group of questions for the participants was inclusive of their thoughts on the monitoring and accountability of the levels of academic rigor utilized in the classrooms. All participants in the study stated that they believed that academic rigor was monitored and evaluated by classroom observations. Each participant was clear in stating that a portion of the Charlotte Danielson framework for teaching was the tool utilized to monitor and evaluate effective teaching in the classroom. The participants were also consistent in stating that nonmandatory usage of cameras in the virtual classroom, for the distance learning portion of the school year, made it difficult to plan for lessons since they were unable to gauge the engagement levels of the students in the class. With not being able to visually engage with students and the inconsistent audio responses, participants felt it was difficult to measure the effectiveness of the academic task planned for the students.

The final set of questions for the participants were regarding the training of staff from the district leadership on the meaning, expectation, and application of academic rigor in each classroom. The initial question was for the participant to answer if they believe that the district leadership provides effective training on academic rigor. This question yielded varying results from the participants. Although the majority of the group's participants did state that the district

does provide training and professional development on academic rigor, the levels and depth of the training differs among each group.

The participants stated that the district mathematics department does provide training on academic rigor; however, it uses different language to describe the term.

According to the participants, the district leadership uses the terms Type 1, Type 2, and Type 3 questions, which refer to fluency, application, and conceptual knowledge questions, respectively. For example, one teacher participant stated, “The Curriculum Pacing Guide has rigor in it. I talked about fluency, real- life application, and conceptual knowledge. We cover those in type one, type two, and type three questions in the math department.” The type one questions referenced by the teacher describe procedural skills and fluency, while type two questions address application of skills into real world experiences. Similarly, type three questions address conceptual knowledge of skills in the mathematics curriculum.

The administrative participants agree that training on academic rigor occurs but offered suggestions on improving the rigor. For example, one administrator participant stated, “Provide (teachers) with some concrete tools that they can use to ensure that they’re implementing rigor in lessons. It might be a cognitive demand rubric, it may be a rubric on student-centered learning, and what that looks like in practice.” The administrator further said, “They released the Literacy 2.0 Plan, which they’re providing teachers the rigor is embedded. They’re providing them with examples of rigor like the progression standards for each grade level. They’re giving visuals to show students’ progress through each grade level.”

The school district leadership has constructed a curriculum and instruction office to lead professional developments with teachers and administrators by subject area. The mathematics department, according to the participants, also visited schools to work with individual teams on

the implementation of the curriculum documents and answer any questions regarding the implementation. The district has also employed literacy coaches, who are assigned to cohorts of three schools that rotate and assist the department chairs with the implementation of the curriculum.

Overall, the participants were in agreement that the district provides training, which, however, results in different levels of effectiveness. An administrative participant said the following: "I don't think (trainers) really take the time to demonstrate fully what rigor looks like. I think teachers still misinterpret rigor and they interpret it as workload." Similarly, a teacher participant stated, "It (trainings) may be another added task in a teacher's mind, but we can only do better when we know better, or we've been exposed so that we have opportunities to grow and do better."

Another administrator made the following account:

> I don't think they understand what academic rigor really is. No, they don't provide the training to the level that we need it. They do a pretty good job of providing a curriculum, a lot of stuff is embedded in the curriculum, but when you show them about unpacking the standards, I don't think that they do a really good job of that.

Several participants agreed that scaffolding the training between the teachers and administrators together would result in improvement in the student's outcomes and implementation of academic rigor. A teacher participant said, "Give us (teachers and administrators) some feedback together so we can make adjustments, provide the necessary trainings if necessary—not mandatory, but suggested trainings. There are different things. Also, I would ask that the district look at exemplars." This participant directly stated that they would like to see training take place between both teachers and administrators. The training would assist in all staff having an aligned understanding of academic rigor and its application. Another participant, an administrator, stated, "I think they (district leadership) delivered the message of rigor. I don't think we've really taken

the time to demonstrate fully what rigor looks like. I think teachers still misinterpret rigor and they interpret it as workload." Having participated in the district's training for administrators and observing the mathematics educators in their school, this participant feels that the teachers have a different understanding of rigor than the administrator, thus directly solidifying the thought that scaffolded training between teachers and administrators simultaneously needs to occur for the overall development of the district. As currently constructed, teachers and administrators are trained separately, thus calling into question the understanding of the other party. Since both teachers and administrators are essential in the implementation of rigor in the classroom, they both require simultaneous training.

Summary

In summary, the teachers and administrators had unique perspectives of the application, implementation, and understanding of academic rigor. Participants were able to provide their perceptions to answer the research questions. The participants were able to answer all questions and were familiar with their interpretation of the terms and subjects being discussed. Each participant appeared to be comfortable in the conversation and was able to answer the questions to the best of their ability. At no point did any participant ask for the interview to be stopped or a break due to emotional stresses or outside distractions.

The analysis, based on coding and themes of the perceptions and experiences of the participants, shed light on their perspectives on the understanding of rigor and application in the mathematics classrooms in Prince George's County, Maryland. The participants had individual perspectives and defined and explained academic rigor as they use it in their schools or classrooms. While the administrators spoke from the perspective of observing teachers' application, the teachers tended to respond from the perspective of what they do in their

individual classrooms. Each participant's personal understanding of rigor had an influence on planning for their daily work, such as the administrator planning for teachers' professional development and collaborative planning meetings or the teachers planning for their children in the classroom. While the participants' responses tended to be aligned with each other, their responses varied when compared to the opposite group. However, the responses aligned between the two groups when discussing the training and professional development offered by the district leadership.

Both groups stated that while academic rigor can mean different things to different personnel, they all agree that it should be applied in the classroom to ensure the students meet the standards and expectations of the curriculum. The participants' responses can be categorized into five overall themes that are analyzed in Chapter 5. These themes include definitions of rigor, application of rigor in the classroom, district leadership communication, monitoring and accountability, and professional development.

CHAPTER 5: CONCLUSIONS AND DISCUSSION

The groundwork for this study on the perceptions of academic rigor in secondary mathematics classrooms in Prince Georges County, Maryland, is focused on the participants perception of the application of rigor in classrooms. This study was completed as a basic qualitative study using coding, thematic, and comparison analysis was utilized approach, in order to restate the thoughts and ideas of the participants. The following chapter contains the analysis of their stories, how these stories influence participants' work, and suggestions for future research. The data was collected from seven educational professionals, four of which were secondary administrators, while the remaining three are secondary mathematics teachers within Prince George's County, Maryland. The study was conducted to answer the following research questions, RQ1: What do stories of teachers and administrators reveal about their understanding of levels of rigor in secondary mathematics classes? RQ2: Is there alignment between the teachers and administrators' perceptions of academic rigor during times of crisis, specifically, the COVID-19 pandemic? The results of the primary research resulted in responses that are aligned in the following themes: definitions of rigor, application of rigor in the classroom, leadership communication, monitoring and accountability, and professional development. These themes show how these participants understand and utilize academic rigor in their individual practice.

Discussion of Findings and Conclusions

The findings of the study can be categorized under five main themes. These themes were developed from the responses of the participants during the interview process. As the participants were interviewed individually, the developed themes add to the validity of the educators' perspectives. Although the themes were developed from the responses of all the participants, the administrative responses and the teacher responses tended to misalign with each other.

The teachers spoke from various perspectives of rigor and its application. Based on the definition of academic rigor (Theme 1) for the study, rigor is defined as the cognitive levels that an academic performance task requires to be completed by a student (Rose, 2020). Only one teacher participant mentioned the student cognitive levels required to complete a task. Conversely, 3 of the 4 administrators mentioned that academic rigor addresses the thought process or cognitive development of the students while interacting with classroom tasks or activities. This phenomenon identifies the beginning of misalignment between the teachers and administrators, leading to inconsistency with expectations or outcomes.

Theme 2 is the use and application of academic rigor in schools and classrooms. The purpose of this theme is to analyze the similarities and differences between the teachers and administrators to assess the existence of alignment. Based on the participants' responses, the misalignment was observed. Several of the administrators clearly stated that they were not sure the teachers were sure of what rigor was; and hence, they were unable to properly apply it to the classroom setting. This response further indicated that the discussion and implementation of academic rigor has not been aligned between teachers and administrators in the school. Since the administrators could not securely state the application of rigor in the classroom, they also cannot state that they have professionally developed their staff in the areas of rigor. Zakhem of the Learning Services Department of Englewood Schools writes that secondary schools have a responsibility to prepare students to be college and career ready. Focusing on the involvement of students in high rigor courses provided a stronger pathway for college and postsecondary success (Zakhem, 2018). Her writing indicates that students engaged in rigorous studies and activities in their secondary careers can lead to increase success and outcomes for their postsecondary lives.

However, this cannot take place if the teachers and administrators do not have a calibrated vision on academic rigor in the classrooms.

Theme 3 is the communication from the district's executive leadership to staff regarding the expectations of the application of academic rigor in schools and classrooms.

These findings were derived from the responses and thoughts of the participants around the communication of leadership and the expectations on the application of academic rigor. Many of participants agreed under this theme, and proposed similar suggestions for growth. The participants stated that the district leadership communicates the expectations of rigor application in the classroom, mostly in the preservice weeks before the start of the school year; however, an analysis and calibration of the term rigor does not take place consistently. Several participants mentioned that the district leadership, in mathematics, again uses the terms "Type 1, Type 2, or Type 3" questions, but does not relate those question types to familiar terms, such as fluency, application, analysis, and conceptual knowledge on a consistent basis. The administrative participants also mention that although the "question type" term is used in the mathematics department, these phares are not used in the other subject area departments, which may lead to confusion for teachers of multiple content areas and courses.

Theme 4 contains the analysis of the responses of if and how the application of academic rigor is monitored and the accountability to its usage in schools. The responses of the participants in this area varied by the position held by each participant. All participants stated that the monitoring takes place during formal and informal observations of staff. Both observation types utilize Charlotte Danielson Framework for Teaching rubric as a model for evaluation. The difference between formal and informal observation is that the formal observation score is used to develop the teacher's overall evaluation at the end of the year.

The Danielson Framework is divided into four domains: Domain 1: Planning and Preparation; Domain 2: The Classroom Environment; Domain 3: Instruction; and Domain 4: Professional Responsibilities (Danielson, 2007). Each of the domains includes several subcategories known as components, and the combination of these domains and components are scored by school administrators on a 4-point scale. The scale is as follows: unsatisfactory, basic, proficient, and advanced, with scores of 1 to 4, respectively (2007). This score is then averaged into the teacher's evaluation for the school year. Each teacher is observed twice within the year, once per semester. According to the participants, the level of academic rigor is measured in Domain 1 Planning and Preparation and within Domain 3 Instruction.

In Domain 3, one component specifically requires the administrator to have an understanding at the levels of academic rigor and are mentioned in the rubric, i.e., Component 3b, Questioning and Discussion Techniques (Danielson, 2007). Within component 3b, there is an element in the rubric, labeled 'quality of questions' (2007). This element requires the administrator to collect evidence from within the classroom to justify the rating on the rubric. The specific language in the rubric is as follows: Unsatisfactory: the teachers' questions are virtually all of poor quality low cognitive challenges and have single correct responses; Basic: the teacher's questions are a combination of low and high quality posed in rapid succession only some invite thoughtful responses; Proficient: most of the teacher's questions are of high quality and provide adequate time for students to respond; and finally, Distinguished: teacher's questions are of uniformly high quality with adequate time for students to respond and cause cognitive challenge (Danielson, 2007). The term cognitive challenge directly refers to the levels of academic rigor applied in the lesson.

Upon completion of the observation, the teacher and the observing administrator are required to have a post-conference, where the two parties discuss the observations and the scores for each of the domains. This post-conference is where the participants would have a follow-up conversation regarding the application of academic rigor in the classroom, under domain 3b. Using this framework is where the monitoring and accountability of the application of rigor between the teacher and the administrator.

The fifth and final theme that emerged from the participants' responses was regarding the professional development of the teachers and staff to apply academic rigor. As stated, the participants claim that much of the professional development was completed at the beginning of the school year, which could pose as a contributing factor to the overall problem of the alignment (between teachers and administrators) of their perspectives. The outcome of the development and progression of the students in the classroom is based on those monitoring and those teaching with calibrated perspectives (Zakham, 2018). This calibration can set the stage for post-secondary success for the students. As a finding of this study, professional development of the teachers and administrators has shown to be critical in addressing the overall problem, especially if teachers and administrators have an aligned perception of academic rigor.

Application of Findings and Conclusions to the Problem Statement

The following section contains the application of the finding from the study and conclusions to the problem statement. The purpose of the study was to examine the perceptions of academic rigor between teachers and administrators of secondary schools to see whether their opinions align during times of crisis, especially the COVID 19 pandemic. Based on the historical research articles used in the study, the application of academic rigor in the classroom impacts the student's preparedness for their post-secondary careers. The COVID-19 pandemic of 2020

placed students and educators in their homes due to the spread of the virus. However, with the quarantine placement, students were required to be educated, and thus virtual learning was introduced.

The specific problem was the lack of evidence that shows that administrators and teachers have aligned perceptions of academic rigor in Prince George's County secondary mathematics (grades 6-12) classrooms during the time of crisis, such as the COVID-19 pandemic. Since this problem has been identified, the participants were specifically asked about training, the message from district leadership about application, and how said messages were relayed and monitored in individual schools as the participants are the direct influencers on the students' academic growth and progress. Teachers directly interact with students on a daily basis, planning lessons and executing research-based pedological practices, while administrators are tasked with the development of school improvement plans, monitoring teacher instruction, and the overall growth and development of the school. Since academic rigor is an essential part of the student growth and development based on the research, both parties would need to have a similar perception or outlook on its application in classrooms. Otherwise, it is quite possible that students graduate from these schools with possible honors but requiring extra support and remediation in post-secondary college or careers to meet the minimum standards. This is the possible danger that schools can encounter when all educational professionals are not aligned in their instructional practices specific to the application of academic rigor in the classroom.

The results of the study from the participants show that the teachers and administrators are not aligned in their perceptions of academic rigor during the times of the COVID-19 pandemic as well as in the daily classroom. The participants' responses showed that each educator was familiar with the term of academic rigor; however, they were not focused on

recurring communication or expectations on district-wide definition or application of the term in classrooms.

Application to Leadership

The application of this study to leadership in education is evidence of the importance of universal communication, expectations, and training for all staff in the organization. Although the participants in the study presented information that shows the district-level mathematics department has held professional development at the start of the school year, there was limited evidence to show whether the conversations were consistent throughout the distance learning process, nor were there evaluations of the professional development provided to the staff (teacher and administrators). By referring to previous research, it can be assumed that since rigor has an impact on students' post-secondary success, school systems should adopt this approach in the search for improvement on classroom outcomes.

Following the calibration of all staff on the expectations implementation of rigor in the classroom, school district leadership can complete various studies on the requirements for postsecondary success. Studies on the rigorous requirements of the post-secondary world, such as college or career, would allow for a school district leadership to ensure that they are properly preparing students for success in society. This outcome cannot be delivered without work and changes throughout some school districts. It is imperative that schools and universities align with the expectations and requirements of students. As one administrator participant stated, "Teaching is an art, and (teachers) have to use their skillsets to go further than what the curriculum is expecting. That's a challenge with what they're learning coming out of the universities right now, and us trying to reteach." The transition of students to universities and the academic rigor in the teacher's classrooms versus the professor's classroom can be studied as future research.

Student learning is one of the primary goals second to student safety, and hence, the educator must apply rigorous tasks and activities in the classroom to get the most out of their students. When asked directly about apply rigor in in the classroom for the students, a participant said, “Absolutely, rigor should be applied. You want to stretch children’s ability to get—to attain knowledge.” This push should continue in the student post-secondary world where students are prepared for active roles.

Recommendations for Action

The recommendations for actions for school district leadership are based on the responses from the teacher and administrative participants in the study. These recommendations are targeted toward addressing the problem identified in this research. The findings show that teachers and administrators do not have aligned perceptions of academic rigor. The first recommendation would be to have consistent, calibrated training and professional development on the understanding of the term. Rigor is a direct reflection of the cognitive functions required by a student to complete a task (Hess, 2009). With this being the case, it is recommended that the participating school district leaders require this to be the focus and theme of each school every year, especially during times of crisis. Traditionally, school systems in Prince Georges County, MD, develop goals for the year, and as a suggestion, this focus should be developed into a goal annually.

Secondly, while the goal of monitoring and maintaining consistently high levels of rigor in secondary schools is established, a universal rating system and definition should also be developed for all members of the school system. The participants within this study represent four different schools at two different levels and provided various levels of responses. These participants have a chance of educating all the same students, based on the student’s home

address. However, if the students move around the county and enroll in a mix of these schools, they would have interacted with schools with varying focuses on rigor and varying definitions in each class, depending on the teacher. In order to achieve consistent outcomes for all students within the district, a consistent definition, scale, and expectation must be established for all employees.

Lastly, upon establishing a universally calibrated and recognized perspective and definition of academic rigor for all employees in the district, layered professional developments on analyzing, rating, and evaluating the levels of rigor in classrooms should also be implemented. The participants acknowledge the use of the Danielson Framework as the rubric used in observations. However, the rubric scale is written (in terms of academic rigor) as questions or activities pose a cognitive challenge for students (Danielson, 2007). The rubric does not, however, provide a scale to rate the levels of cognitive challenge, nor does it provide a scale for the administrator to rate the level of the cognitive challenge for what the teacher has planned. An example of a scale that can be used in the classroom as explained by Hess et al. (2009) is the Depth of Knowledge rubric. By using this rubric, educators can rate the activities and questions given to the students by the verbs used in the directions and the expectations of the activity. Having this universal scale allows for consistency and understanding of the application of rigorous tasks by the teachers and administrators alike. This tool also allows for consistent use of rigorous tasks during times of crisis as well as non-crisis. The participants in the study agree that the application of rigorous tasks was declined while the students undertook virtual learning. This decline can be contributed to the learning loss experienced by the students during the same distance learning period. By using a scaled rubric, measuring academic rigor can provide the

teachers with a guide of planning lesson activities and administrators with a roadmap for rating the effectiveness of the lesson reaching the state-mandated standards.

Recommendations for Further Research

The recommendations for further research are multifaceted. To begin, research in other subject areas, such as English, science or history should be completed to assess if the results in regard the communication and implementation of academic rigor yields similar results to the mathematics area in Prince George's County. One could surmise that the suggestion of universal language, rating, and communication should also be applied to the various subject areas being utilized in the district. As the goal for all school districts is success for their scholars upon graduation, research can also be conducted to examine the effects on students where schools have a universal perspective on academic rigor and its implementation.

The future research suggestions continue with the review and comparison of academic lesson plans that were provided to students during times of crisis as compared to lessons provided to students during traditional classroom instruction, in terms of the levels of rigor. The participants within the study commented that they believed the academic tasks were less rigorous during virtual learning than during in-person learning. This can be investigated in future research to observe whether any difference exists between the lessons and how it can be remedied.

Another area that was not analyzed in this study is the perspectives of the students. This study was focused on teachers, administrators, and district leadership's communication. Follow-up research involving the students in these classes can be investigated to assess if students feel that they are mastering concepts in rigorous versus relaxed classes. Sample evidence can be used to support the findings are scores for state mandated assessments for the students in the various classes. Measuring consistent levels of rigor of various classes and comparing the impact of state

assessments can assist in solidifying serval theories on the subject. The final two areas can be investigated in the future to assess the impact on academic rigor for the students in elementary schools, as well as the post-secondary options. This study was conducted in only the mathematics subject area in secondary classes covering middle and high schools. A similar study can be completed to observe the influence of analysis and focus on academic rigor on students transitioning from elementary school to middle school, as well as graduating from high school onto their post-secondary options. Furthermore, an analysis of the rigor can be completed at the college level coursework and compared to high schools in different areas of the county. Moreover, the usage of a rubric to measure the levels of academic rigor in classes can be applied throughout a scholar's educational career. This rating can assist in ensuring that one data point is addressed between a scholar's matriculation through his or her educational career.

Concluding Statement

In conclusion, the study of academic rigor for educators is paramount for the success of students, especially during times of crisis. Communication from district leadership can assist teachers and administrators by being clear, concise, and consistent with expectations regarding implementation of academic rigor in the classroom. Professional development opportunities should be available for staff of verifying levels of understanding. Although the school closures for a period of 18 months due to the global pandemic was unexpected and unforeseen, a contingency plan can be implemented for all school districts to make the transition to distance learning, should it ever be needed, be as seamless as possible.

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APPENDIX A

Perceptions of Academic Rigor in times of Crisis Guiding Interview Questions

1. What is your current position in the educational field (teacher or administrator) of or over secondary mathematics in your school?
2. How long have you worked in your current position as a secondary mathematics teacher or secondary administrator?
3. Can you give a brief description of your understanding of the term "academic rigor"?
4. When you hear the term "academic rigor", what are the first thoughts that come to your mind?
5. Do you believe that academic rigor is applied in a classroom setting and if so, can you describe how? Can you please provide examples?
6. How would you describe your experience in teaching or observing teaching during the COVID-19 pandemic regarding the application of academic rigor?
7. Does your school district leadership provide training on academic rigor? If so, what types of training and what does the training entail?
8. Has your school district leadership communicated any expectations on the application of academic rigor in classroom lessons or activities? If so, what was the message and how was it delivered?
9. Do you believe academic rigor is monitored and evaluated in your experiences in your school systems? If so, how?
10. When planning an academic task, do you believe academic rigor is applied? Why or why not?

11. What advice would you provide to school district leadership to communicate the expectations of academic rigor in student tasks during a future time of crisis?

APPENDIX B

Perceptions of Academic Rigor in Times of Crisis Definitions of Key Terms

Please see the following definitions of key terms that were used during these interviews.

Academic Rigor: A highly debated term in the educational community; however, in the study context, the time references the cognitive levels that an academic performance task requires to be completed by a student. A process of actively learning meaningful contacts with higher order thinking and the appropriate level of expectation (Rose, 2020).

Academic Task: Academic tasks can be defined as activities utilized in a classroom for students to focus on a particular skill or standard within the subject area. Although traditionally, academic tasks and engagement have been measured in a static form of a student being engaged or not engaged, the current research investigates intellectual task engagement as a meta-construct with various levels of engagement within academic tasks (Parsons et al., 2018)

Secondary Administrator: The term secondary administrator was defined as a person currently in the principal, assistant principal, academic dean, or wing coordinator or the Prince George's County, MD. Each of these positions serves in a supervisory role of teachers and formally observes teachers for pedological growth and evaluation in grades 6 to 12.

Secondary Teacher: Secondary teachers are defined as current academic instructors of mathematics in grade levels 6 through 12. Prince Georges County Public Schools separates middle school students, grades 6 through 8, and high school students, grades 9 through 12, into different schools. However, secondary education in PGCPS is classified as all grade levels over fifth grade. Therefore, teachers and administrators from both middle and high school buildings aew eligible for the study.

APPENDIX C

Letter to District Leadership Personnel

Fall 2021

Dear School District Leadership Personnel,

I, Michael Gilchrist, am in the process of completing the proposal, which will be submitted to my dissertation committee to receive their permission in order to complete my research study. My dissertation, *An Analysis of the Perceptions of Academic Rigor by Prince Georges County, Secondary Mathematics Teacher and Secondary Administrators during the COVID-19 Crisis,* will involve interviewing and surveying mathematics teachers and administrators in middle and high schools (grades 6-12). These interviews will include questions regarding the teachers' and administrators' experiences, work, and requirements during the COVID-19 pandemic. To effectively complete this task, I require input from teachers and administrators; therefore, I am writing to request permission to conduct these interviews with staff in your school district. Thank you for your consideration and I appreciate your assistance in this matter.

Yours sincerely,

Michael E. Gilchrist
Doctoral Candidate
City University of Seattle

APPENDIX D

Letter to Educational Staff

Dear Secondary Mathematics Teacher or Administrator,

You have been identified by your school district as a secondary teacher or administrator of a mathematics curriculum. I am completing my dissertation entitled, *An Analysis of the Perceptions of Academic Rigor of Secondary Mathematics, Teachers and Administrators during the COVID-19 Crisis.* In order to complete my research, I require your assistance. I understand that this may be a busy time in the school year and would greatly appreciate your willingness to participate in the study.

If you are willing to assist, I would like to interview you at a time that is convenient for your schedule. The virtual interview will last approximately 45 minutes to an hour and will take place over the Zoom platform. All information that is discussed in the interview will be coded for confidentiality and will not include your name or employment location. This study has been approved by your school district.

It is my hope that you will be willing to participate, and I look forward to an affirmative response to this request. Thank you for your time.

Kind regards,

Michael E. Gilchrist
Doctoral Candidate
City University of Seattle