2020

Perceptions of Home-Based Parental Involvement and Middle School Students' Science Outcomes

Staicy Anthony
Walden University

Walden University

College of Education

This is to certify that the doctoral study by

Staicy Anthony

has been found to be complete and satisfactory in all respects,
and that any and all revisions required by
the review committee have been made.

Review Committee
Dr. Mary Hallums, Committee Chairperson, Education Faculty
Dr. Lynn Varner, Committee Member, Education Faculty
Dr. Kelly Hall, University Reviewer, Education Faculty

Chief Academic Officer and Provost
Sue Subocz, Ph.D.

Walden University
2020

Abstract

Perceptions of Home-Based Parental Involvement and Middle School Students' Science Outcomes

by

Staicy Anthony

MS, University of Saint Joseph, 2009

BS, University of Saint Joseph, 2007

Dissertation Submitted in Partial Fulfillment

of the Requirements for the Degree of

Doctor of Education

Walden University

August 2020

Abstract

A low-income, urban school district has consistently failed to achieve the state's target science performance index for several years at the middle school level. Studies have suggested that parental involvement affects student achievement. Middle school administrators and science teachers lack an understanding of home-based parental involvement behaviors regarding students' science outcomes. There is a need for increased home-based parental involvement to enhance science outcomes among middle school students. The purpose of this basic qualitative study was to fill the gap in practice by exploring administrators' and science teachers' perceptions of home-based parental involvement behaviors regarding middle school students' science outcomes. The conceptual framework for this study was based on the Level 2 learning mechanisms of home-based parental involvement behaviors as developed by Hoover-Dempsey and Sandler. Research questions focused on administrators' and science teachers' perceptions of home-based parental involvement behaviors regarding middle school students' science outcomes. Qualitative data were collected through one-to-one semistructured interviews of 8 administrators and 8 science teachers from the middle schools. Data were analyzed through in vivo coding, open coding, and axial coding, from which themes emerged. The findings revealed that participants recognized and identified a need for improved home and school collaboration, programs to enhance home-based parental involvement in science education, and quality interactions between parent and student. Themes suggested how administrators and teachers can support parents in influencing students' overall academic outcomes, thereby providing information to address the social problem of low science performance in urban low-income, middle schools.

Perceptions of Home-Based Parental Involvement and Middle School Students' Science Outcomes

by

Staicy Anthony

MS, University of Saint Joseph, 2009

BS, University of Saint Joseph, 2007

Dissertation Submitted in Partial Fulfillment

of the Requirements for the Degree of

Doctor of Education

Walden University

August 2020

Dedication

I dedicate this dissertation to my loving husband, Anthony Kallingal. Your unwavering support, patience, and understanding have bolstered my confidence to push forward through the many challenges of school and life. You have been my coach, confidant, and a cornerstone throughout this long journey. You will never know how much I appreciate the countless times you have motivated me to stay the course during my times of despair. Knowing that you are always by my side is the reason behind the fruition of this dream. You are amazing, and I am truly blessed!

Acknowledgments

First and foremost, I give all glory and honor to God Almighty for molding me into the person I am today. I thank the Lord for giving me the strength and perseverance to endure the difficulties and trials of my doctoral journey. I am grateful for all that He has provided. A special thank you to my husband for everything that you have brought to my life. I love you. To my children, Alexander and Aloysius, thank you for your big sacrifices, for shorter cuddle times, for telling me to go and study, for late nights and early mornings. May this journey be an inspiration for you to never stop striving to achieve your goals.

I would like to thank my in-laws for their support and encouragement. To my mother for her prayers and to my father, who is looking down from heaven, smiling proudly. Thank you for always believing in me. I would like to thank my siblings, siblings-in-law, and colleagues for their encouraging words and prayers.

I would like to express my sincere and humble gratitude to all members of my committee. My chairperson, Dr. Mary Hallums, for her guidance and encouragement in helping me achieve this accomplishment. My second member, Dr. Lynn Varner, and my URR, Dr. Kelly Hall, for the support and feedback that you have given me.

I would also like to thank the administrators and teachers who participated in my study. I appreciate their willingness to take time out of their busy schedule. Finally, sincere gratitude to all my well-wishers for your positive thoughts and prayers, which has led me to reach this point in my academic career.

Table of Contents

List of Tables

Chapter 1: Introduction to the Study

Parental involvement is an essential factor that influences student achievement in American public schools (Park & Holloway, 2017; Wilder, 2014). Depending on the location of the involvement, these behaviors are classified as school-based or home-based (Strickland, 2015). School-based parental involvement behaviors include involvement in school activities or teacher-school interactions and communications (Abuya, Wekulo, & Muhia, 2018; Green, Walker, Hoover-Dempsey, & Sandler, 2007). Home-based parental involvement behaviors refer to non-formal learning and teaching practices that occur at home (Yotyodying & Wild, 2016). Both school- and home-based involvement behaviors tend to decrease as students transition from elementary to middle school (Heaton, 2016; Lloyd-Smith & Baron, 2010).

This basic qualitative study focused on home-based parental involvement behaviors, which included learning-related activities conducted by the student and the parent outside of school (Hoover-Dempsey & Sandler, 2005; Merriam & Tisdell, 2016; Yotyodying, 2012). As a key supporting element of middle school science outcomes, home-based parental involvement behaviors were explored from the perspectives of middle school administrators and science teachers. The Hoover-Dempsey and Sandler (2005) parent involvement model's Level 2 learning mechanisms (instruction, modeling, reinforcement, and encouragement) used by parents during home-based involvement activities have shown a positive influence on student achievement (Castro et al., 2015).

The potential promising social change implication of the study was the increased insight into home-based parental involvement behaviors for improving middle school

students' academic outcomes in science. The results of this study may enable administrators, teachers, and parents to understand home-based parental involvement better and meet the needs of middle school science students in the district. In Chapter 1, I present an overview of the background of the study, the purpose of the study, research questions, and the conceptual framework that guides the research related to parental involvement and science achievement. Additional sections in Chapter 1 are the Nature of the Study, Definitions, Assumptions, Scope and Delimitations, Limitations, and Significance of the Study.

Background

Parental involvement has been studied as a crucial ingredient for student success (Leithwood & Patrician, 2015). Educational researchers, as well as policymakers, value parents or caregivers as active participants in their child's academic promotion (Boonk, Gijselaers, Ritzen, & Brand-Gruwel, 2018; Wilder, 2014). Several educational reform initiatives such as the No Child Left Behind (NCLB) Act of 2002, the Elementary and Secondary Educational Act (ESEA) of 2004, and Every Student Succeeds Act (ESSA) of 2015, indicated the importance of parental involvement in student achievement (Laws & Guidance, n.d.). These initiatives also included specific guidelines for parent and family engagement, allocating 1% of the district's grant specifically to family engagement activities (Laws & Guidance, n.d.). Additionally, ESSA required students to be tested in science at least once in middle school to monitor students' academic growth (State Department of Education, 2016). Parental involvement is best understood within the

context of the community involved to determine the best practices as well as strategies that will improve middle school students' science achievement (Tang, 2015).

Student science achievement is a concern nationally as students are less prepared for science, technology, engineering, and mathematics (STEM) careers (Blotnicky, Franz-Odendaal, French, & Joy, 2018; Hossain, 2012; Reeve, 2015). The Program for International Student Assessment science literacy exam from 2015 revealed a steady decrease in science scores since 2009 (Organization for Economic Co-operation and Development, 2017). The inequity in science achievement continues to persist among diverse groups, as there are more underserved students (Bianchini, 2017). The Educate to Innovate Initiative of 2009 was designed to drastically improve students' science and mathematics achievement for STEM-focused careers (Reeve, 2015). Researchers continued to validate the importance of parental involvement in student achievement regardless of their educational level (Hill, Witherspoon, & Bartz, 2018).

In the state where the district under study is located, middle schools are also expected to be accountable, to make yearly growth and improve the subject performance index in English language arts (ELA), mathematics, and science. The state's Next Generation Accountability Report showed that the science performance index at the school under study has been stagnant since the 2014-2015 school year (State Department of Education, 2015). The state implemented the Next Generation Science Standards (NGSS) Curriculum in 2018 as the new science curriculum to improve science education as well as the standardized scores (State Department of Education, 2015). The National Science Teachers Association (2014) recommended that parents play an active role in

their child's science education by providing opportunities for science learning at home though natural and human-made phenomena. Amid the challenges of the new NGSS science curriculum, it is essential that school administrators, as well as policyholders, use innovative ways to improve student outcomes by optimizing all available resources, including home-based parental involvement, in order to improve students' academic growth.

Home-based parental involvement is beneficial for all students regardless of parents' socioeconomic status, race/ethnicity, and educational background (Deslandes & Barma, 2016). This study addressed a gap in practice regarding home-based parental involvement behaviors by examining both administrator and science teacher perceptions on this topic. Future research is necessary to understand the perspectives of administrators and science teachers on home-based parental involvement and students' science outcomes.

According to Grant and Ray (2018), meaningful parent involvement programs should be implemented to help schools educate students. The ESSA indicated the importance of home-based parental involvement in improving student academic achievement (U.S. Department of Education, 2010). The state's new accountability system is aligned with ESSA. Because it is not clear whether students will be adequately prepared for the rigorous science curriculum, home-based parental involvement is also critical in the implementation of NGSS (State Department of Education, 2015). This basic qualitative study aimed to provide valuable insight into administrators' and science teachers' perceptions of home-based parental involvement behaviors, which can be useful

in improving school-home collaborative practices for positive student performance in science.

Problem Statement

The problem is that the administrators and science teachers lack an understanding of home-based parental involvement behaviors regarding middle school students' academic outcomes in science education. Home-based parental involvement behaviors are associated with increased student achievement among elementary and high school students (Ansari & Gershoff, 2016; Castro et al., 2015; Watkins & Howard, 2015). A gap in practice exists with regards to home-based parental involvement behaviors at the middle school level since few investigations have been conducted concerning middle school students (Bhargava & Witherspoon, 2015). This study explored the perceptions of home-based parental involvement behaviors and academic outcomes in science at the middle school level. Wang and Sheikh-Khalil (2014) stated that home-based parental involvement behavior is the most important aspect of parental involvement that directly fosters learning and improves academic achievement among students.

However, low-income families are less likely to be involved in their child's education at home compared to their middle-class peers (Wang, Deng, & Yang, 2016). The urban low-income school district under study demonstrated a need for increased home-based parental involvement behaviors to support learning mechanisms used to improve instruction for enhancing academic outcomes in science among middle school students. Parent involvement is low, according to the principal of a middle school. Conversations with other teachers and my observations at middle school parent-teacher

conferences since September 2013 confirmed a lack of home-based parental involvement, specifically in students' science education at this middle school.

Home-based parental involvement, as well as parents' knowledge about their child's performance, is below expectations, as evidenced by the low frequency in grade monitoring at one of the middle schools under study. According to a report generated by PowerSchool, the district's learning management system, in the 2018-2019 school year, 75.5% of parents did not access their child's grade book to follow up on their academic achievement. Of the parents that did access the grade book, 7% of them logged in once during the school year.

The 2017-2018 first-quarter grades presented by a middle school administrator at a science meeting revealed that 33% of students failing or achieving below average in science. The science performance index gap between high-needs and non-high-needs students on the state assessment was 13.9 in 2015-2016 and 14 in 2016-2017 for middle school students (State Department of Education, 2015). In 2015-2016, the state's standardized science mastery test scores for the district where the school under the study was located reported that 47.9% of the students failed to perform at or above goal level compared to 39.8% state average (State Department of Education, 2016). In 2018-2019, 60.9% of students were below goal level compared to 47.8% state average on the new NGSS assessment (State Department of Education, 2019). Educators are challenged with parental involvement efforts at the middle school level as parents' beliefs about the boundaries of parental authority changes, and students discourage parental involvement due to their autonomy (Murray et al., 2014). Additionally, only 11.6% of the parents

responded to the first parent survey conducted at this school in 2011. The second survey in 2016 received a 12.7% response, according to a middle school administrator.

The school district's focus has been on improving student achievement in the areas of ELA and mathematics. Student achievement is a significant concern even at the state level, which is why, in 2014-2015, the state implemented a new set of assessments with a holistic approach that assesses students' academic growth over time (State Department of Education, 2016). The Next Generation Accountability System was implemented in ELA, math, and science as a way to determine and help close the achievement gap between high-needs and non-high-needs students (State Department of Education, 2016). This system includes twelve indicators that measure student growth over time and how well students are prepared for college, career, and life (State Department of Education, 2016). Based on these indicators, the local middle schools under study have not shown any growth in science assessment for 3 years (2015-2017) with a performance index rate at 59 (State Department of Education, 2016). The state's science performance index target rate is 75 (State Department of Education, 2016).

Parental involvement in a child's life is associated with increased student achievement (Huat See & Gorard, 2015). This study explored perceptions of home-based parental involvement behaviors and students' science outcomes, where a gap in practice exists in a local school district. In order to address the issue of low student achievement at one of the low-income middle schools, several strategies were implemented by the school administrators, including weekly updates on the online grade book, daily homework postings on the school's website, and active communication with parents of

low-performing students. However, these home-based parental involvement strategies of administrators and teachers have been minimally successful, as indicated by no growth in the percentage of parents involved in their children's education between 2017 and 2018.

Parental involvement behaviors seem to be declining as parents struggle with barriers such as time due to their work schedules and their lack of confidence in influencing their children's success (Brock & Edmunds, 2010; Marshall & Jackman, 2015). According to a teacher in the district, these barriers are observed at this low-income middle school in that parents are often unaware of teacher expectations, major assignments or test dates, online homework, or grade book postings. In addition, many parents may not know why their participation is vital at the middle school level or how to even help their child with academics (Walker, Hoover-Dempsey, Whetsel, & Green, 2004). Edwards (2016) added that a partnership between teachers, administration, and parents with clear communication, goals, and values could enhance student achievement.

Purpose of the Study

The purpose of this basic qualitative study was to explore administrators' and science teachers' perceptions of home-based parental involvement behaviors regarding middle school students' academic outcomes in science education. Perceptions were sought from participants through semistructured interviews. Findings from this study could increase understanding of administrators' and science teachers' perceptions and provide insight into home-based parental involvement behaviors in students' science outcomes.

Research Questions

This qualitative, basic research study used Hoover-Dempsey and Sandler's (2005) Level 2 learning mechanisms (instruction, modeling, reinforcement, and encouragement) as the framework to understand home-based parental involvement behaviors. The study addressed administrators' and science teachers' perceptions of home-based parental involvement behaviors regarding middle school students' academic outcomes in science education by answering the following research questions:

- RQ1: What are administrators' perceptions about home-based parental involvement behaviors regarding middle school students' academic outcomes in science education?
- RQ2: What are science teachers' perceptions about home-based parental involvement behaviors regarding middle school students' academic outcomes in science education?

Conceptual Framework

The conceptual framework for this study was based on the learning mechanisms of home-based parental involvement behaviors, as developed by Hoover-Dempsey and Sandler (2005). The research of Epstein (2008), as well as Hoover-Dempsey and Sandler, demonstrated the influence of the home environment on students' educational achievements. Hoover-Dempsey and Sandler created a five-level model that explained the influence of parents on student achievement. Level 2 (instruction, modeling, reinforcement, encouragement) described four learning mechanisms used by parents involved with their child's schooling. Hoover-Dempsey and Sandler explained that

parents could influence students' academic outcomes by modeling pro-school attitudes and behaviors, encouraging student participation in school, and reinforcing good grades as well as direct instruction at home. These mechanisms were identified through the Parent Involvement Project (Hoover-Dempsey & Sandler, 2005).

Throughout a child's schooling years, parental educational involvement changes from regular school visits and teacher interactions at the elementary level to less parental involvement in schools at the middle school level (Toren & Seginer, 2015). Home-based parental involvement is more prominent with more support as well as encouragement at home with middle school students (Toren & Seginer, 2015). In the Hoover-Dempsey and Sandler (2005) research-based home parental involvement model, the idea of parent and school involvement is expressed in social interactions between the parent and the child that occurred within the home.

For this study, I developed the interview questions to focus on Hoover-Dempsey and Sandler's (2005) four learning mechanisms of home-based parental involvement. Data were analyzed through this conceptual lens. The conceptual framework and its role in framing the study will be further discussed in Chapter 2.

Nature of the Study

This study used a basic qualitative design approach. This research design was the most appropriate for this study because it allowed the administrators and science teachers to describe their perceptions without any preset boundaries that are often part of quantitative studies. A basic qualitative approach was not a bounded system that adheres to any distinctive characteristic or any additional purpose (Merriam & Tisdell, 2016).

Ethnography, grounded theory, and phenomenology, on the other hand, are guided by a set of assumptions with other purposes (Merriam & Tisdell, 2016). The basic qualitative research design was well suited to obtain an in-depth understanding of home-based parental involvement behaviors.

The sample of participants for the study included 16 middle school administrators and middle school science teachers from the district under the study. This qualitative study design used descriptive data gathered from semistructured interviews to explore the perceptions of home-based parental involvement behaviors regarding middle school students' academic outcomes in science education. The data were analyzed to find common themes as well as meanings to compare the data to existing research (see Creswell & Creswell, 2017). A primary goal of a qualitative study design was to provide exploration and understanding of how people make sense of their lives and experiences (Creswell & Creswell, 2017).

Definitions

Adolescence: A period of hormonal development and emotional changes as children transition to adulthood — a pivotal moment for the development of autonomy (Steinberg, 2014). Parental involvement is still critical and emotionally beneficial during this time (Guyer, Silk, & Nelson, 2016).

Parental encouragement: A dimension of parental involvement where parents show explicit, active support for their child's engagement in school or related learning activities (Hoover-Dempsey & Sandler, 2005).

Parental instruction: A dimension of parental involvement that emerges in social interactions between the parent and the child during activities that allow the engagement of shared thinking related to learning processes (Hoover-Dempsey & Sandler, 2005).

Parental involvement: The mechanisms or aspects related to specific behaviors that parents use to interact with their child (Strickland, 2015). These learning mechanisms include instruction, modeling, reinforcement, and encouragement. Home-based parental involvement behaviors help support student learning. Some examples include helping with homework, reviewing for a test, or monitoring student progress.

Parental modeling: A dimension of parental involvement where parent and child engage in reciprocal interactions related to school activities (Hoover-Dempsey & Sandler, 2005).

Parental reinforcement: A dimension of parental involvement where parents reinforce behaviors through consequences to develop and maintain student attributes that promote positive learning outcomes (Hoover-Dempsey & Sandler, 2005).

Assumptions

Several assumptions were made about this study of home-based parental involvement behaviors regarding middle school students' academic outcomes in science education. The assumptions were as follows:

- Administrators and science teachers who agreed to participate in this basic qualitative study would provide their honest opinions on their perceptions.
- Multiple interpretations existed among audiences of the research, researcher, and participants (Marion, 2007).

- Findings would emerge from participants' voices based on the researcher's inductive interpretation (Marion, 2007; Ravitch & Carl, 2019).
- Interpretations would be an accurate reflection of administrators' and science teachers' perceptions.

Scope and Delimitations

The administrators who participated in this study were all employees of the same district and are currently serving or served the middle school under the study. The science teachers were all middle school employees, teaching sixth through eighth grade in the district under study. This study focused on the perceptions of participants delimited to four learning mechanisms. Other aspects of home-based parental involvement were not explored in this study.

Limitations

This basic qualitative study was conducted in one district in the northeastern region of the United States, so generalizability is limited to that region. Outcomes may not apply to other districts. The study was also limited to voluntary participants who were self-reporting. Dependability was limited to voluntary self-reports of participants. Dependability was improved by inviting participants who have been employed at the school for a certain length of time, as described in the Participant Selection section of the Methodology in Chapter 3. Dependability was also improved by taking the steps outlined in the Trustworthiness section of Chapter 3.

Significance

This study was significant to the field, the school district itself, as well as administrators, students, science teachers, and parents of the district. Findings could contribute to the field, adding literature to the existing studies which use the conceptual framework of Hoover-Dempsey and Sandler's (2005) model of parental involvement behaviors. The study might be noteworthy to the district because the results could depict additional information on student learning at home and can be used to implement meaningful programs that promote home-based parental involvement (Hamlin & Flessa, 2016). Administrators might use the results to enhance their understanding of home-based parental involvement and student outcomes.

Furthermore, students might benefit from greater parental and teacher partnerships. This study could help science teachers understand the dynamics of home-based parental involvement behaviors. The results might create awareness among parents about home-based parental involvement behaviors and student outcomes. The potential findings could lead to a positive social change within the local community as the study provides current parent involvement data that are specific to the district.

Summary

Home-based parental involvement behaviors are a critical supporting element in increasing student outcomes (Watkins & Howard, 2015). Science performance is also significant in mastering application, problem-solving, and critical thinking skills needed for a well-rounded education for high school graduates to be college and career ready students (U.S. Department of Education, 2010). Administrators' and science teachers'

lack of understanding of home-based parental involvement behaviors regarding middle school students' academic outcomes in science education was an identified gap for this study. The purpose was to explore the perceptions of home-based parental involvement behaviors and academic outcomes in science education. The conceptual framework guiding the study was based on the learning mechanisms of the Hoover-Dempsey and Sandler (2005) model of parental involvement behaviors.

A basic qualitative study was the best approach for this study since participant perceptions were used to make meaning. I conducted semistructured interviews to gather perspectives of 16 administrators and science teachers, which could then be analyzed for the study. This study was delimited to the four learning mechanisms in Level 2 of the Hoover-Dempsey and Sandler (2005) model. The generalizability of the study was limited to the district being used. This study was significant in further understanding the home-based parental involvement behaviors at the middle school level. Chapter 2 also provides an overview of the literature related to home-based parental involvement and science outcomes.

Chapter 2: Literature Review

The problem addressed in this study is that administrators and science teachers lack an understanding of home-based parental involvement behaviors regarding middle school students' academic outcomes in science education. There is a need for an in-depth understanding of middle school parents' home-based involvement to allow for effective strategies to address low student performance in science. Sebastian, Moon, and Cunningham (2017) found that parent-initiated parental involvement positively correlated with student achievement. Addressing this research problem, the purpose of this basic qualitative study was to explore the perceptions of administrators and science teachers about home-based parental involvement regarding academic outcomes in science education among middle school students.

Parental involvement behaviors have been studied for decades by several researchers as a path to enhance academic achievement (Duppong Hurley, Lambert, January, & Huscroft D'Angelo, 2017). The NCLB Act of 2002 and ESSA of 2015 incorporated specific expectations for schools to improve parental involvement behaviors in their schools to influence academic outcomes. Adolescents acquiring more independence may refrain parents from school-based involvement (Oswald, Zaidi, Cheatham, & Diggs Brody, 2018). Home-based parental involvement behaviors have also been the focus of various literature as critical in student achievement (Yotyodying & Wild, 2016). There is limited research regarding the specific parental behaviors that result in academic achievement in adolescents (Brotman, Barajas-Gonzalez, Dawson-McClure, & Calzada, 2018; Sebastian et al., 2017).

The four major sections of the literature review for this study begin with the Literature Search Strategy. In the Conceptual Framework section, I explain the model of Hoover-Dempsey and Sandler's research-based home parental involvement (Aligbe, 2014). Furthermore, the four fundamental mechanisms (instruction, modeling, encouragement, reinforcement) involved in home-based parental involvement are discussed. The literature review included themes and topics related to parental involvement and students' science achievement. The chapter ends with a summary of the major ideas discussed in the literature review.

Literature Search Strategy

To collect relevant information for the literature review, I used online databases such as ProQuest, SAGE Journals Online, Education Source, ERIC: Educational Resource Information Center, State Department of Education, ProQuest, Science Direct, and Google Scholar from Walden University Library. The key search terms and search phrases included *parental involvement, home-based parental involvement, family involvement, factors associated with parental involvement, student achievement, parental involvement and science achievement, parental involvement behaviors, and middle school students.* The search provided resources to synthesize the present existing research and relevant debates particular to issues of parental involvement. Peer-reviewed journals and seminal works were selected until the saturation point was reached for this topic of study.

Conceptual Framework

Parental involvement is a complicated term to interpret, define, and theorize by researchers (Duppong Hurley et al., 2017). The parental involvement framework of Epstein and colleagues is widely researched (Brotman et al., 2018; Epstein & Connors, 1995). The four factors from Epstein's framework are school-based parental involvement, home-based parental involvement, school support for parenting, and encouraging involvement in school and community agencies (Epstein, 2011; Epstein & Connors, 1995). Another framework that focuses on parental communications regarding expectations and aspirations in education is academic socialization (Hill & Tyson, 2009). In this framework, Hill and Tyson (2009) refer to parents promoting the value of education, discussing learning strategies as well as prepare children for their educational future. In contrast, Hoover-Dempsey and Sandler's framework (2005) provided a detailed explanation of the parental involvement process in middle school children's education.

Home-Based Parental Involvement Model

Hoover-Dempsey and Sandler (2005) developed a model that discussed the influence of learning mechanisms of parental involvement behaviors on students' academic achievement. The 2005 model for parental involvement behaviors was a revised version of the 1997 model. This model addressed three main questions: (a) Why do parents become involved in children's education? (b) What do they do when they are involved? (c) How does their involvement, once engaged, influence student outcomes? The five levels of the revised model addressed the parental involvement process.

Level 1 explained the parent's motivation for involvement, which included the parent's personal motivator, perceptions of invitations, and life context variables. Level 1 involvement contributed to Level 2, which can either be home-based involvement and school-based involvement or both. Level 2, the basis for this study, indicated the learning mechanisms that parents use during involvement activities such as instruction, modeling, encouragement, and reinforcement. Level 2 is mediated by Level 3 involvement. Level 3 explained the importance of student perceptions of their parent's mechanism usage. Level 3 influenced Level 4 of the model, which described four student attributes that are conducive to academic achievement. These four student beliefs and behaviors included students' academic self-efficacy, intrinsic motivation to learn, self-regulatory skills, and social dimensions of school success. Level 4 leads to the goal of this model, which is student achievement (Level 5).

This study was inherently based on social constructivism as well as ecological perspectives that influence the Level 2 learning mechanisms of parental involvement behaviors outlined by Hoover-Dempsey and Sandler (2005) model. This model proposed home-based parental involvement as the naturally occurring interactions between a parent and a child, where behaviors specific to the learning mechanisms are demonstrated. The four mechanisms of home-based parental involvement behaviors are instruction, modeling, encouragement, and reinforcement of school-related activities at home (Hoover-Dempsey & Sandler, 2005).

Parental instruction. Hoover-Dempsey and Sandler (2005) explained parental instruction as social interactions between parent and child to promote student learning as

they engage in structured activities or school-based tasks in the home setting. Studies have linked home-based parental involvement activities and children's early reading and mathematics achievement (Puccioni, 2018). Parents may act as teachers and instruct their children in their educational goals to improve student achievement (Hoover-Dempsey & Sandler, 2005; Liu, 2019). Assisting with homework, redirecting learning, answering questions, and explaining topics related to learning are part of the instructional learning mechanism that associates with student success (Hoover-Dempsey & Sandler, 1995). Parental instruction positively impacts academic achievement (Gubbins & Otero, 2016; Sheldon & Epstein, 2005) and is more influential than teachers even when parents lack the content knowledge (Hoover-Dempsey et al., 2001).

Parental modeling. Parental modeling allows parental values towards education to be adopted by the child as they engage in interactions related to school activities (Hoover-Dempsey & Sandler, 2005). Parents model positive school-related behaviors as they help their children with homework, communicate with teachers, attend school events, and guide children with educational decisions (Epstein & Sheldon, 2006). Parental involvement in education shows adolescents that education is essential, promoting their willingness to follow the norms of the school (Dotterer & Wehrspann, 2016).

Parental encouragement. According to Hoover-Dempsey and Sandler's (2005) model, parental encouragement is the practical support for students' engagement in school-related activities. When parents support and motivate students in their learning or to participate in extracurricular activities, students with high self-efficacy tend to increase

their effort and attention towards higher achievement (Al-Alwan, 2014). Parental involvement in education can encourage students to achieve in school as well as improve their school attendance (Bashir & Bashir, 2016; Titiz & Tokel, 2015). Bashir and Bashir (2016) found a significant relationship between parental encouragement and students' educational aspiration. Wang et al. (2016) reported that parents' high educational expectations for their children, regardless of their socioeconomic status, motivates parents to be more involved at home and school by providing learning opportunities to promote student achievement. Similar results have been found in middle school students where parents' involvement and support led to positive student achievement outcomes. Social psychologists also discuss the effectiveness of parental encouragement and guidance in the process of adolescents developing their ideas and goals (Hyde et al., 2017).

Parental reinforcement. Hoover-Dempsey and Sandler (2005) observed that parental involvement behaviors of reinforcement positively influenced student achievement. The reinforcement theory states that behavior patterns occur and are maintained by their consequences (Skinner, 1989). Students will learn or continue behavior patterns if it is consistently associated with positive reinforcement (Hoover-Dempsey & Sandler, 2005). Gubbins and Otero (2016) pointed out the importance of effective parental styles and parental reinforcements to enhance teacher's classroom effectiveness. Titiz and Tokel (2015) suggested that student achievement improves when parents work with teachers and administrators to be more involved in the student's education and ensure that education occurs in the family environment.

Literature Review Related to Key Concepts and Variables

This review focused on parent involvement and academic outcomes in science learning, barriers to parent involvement, and other aspects of parent involvement. Parental involvement has been the focus of federal legislation for many years as the government recognized its importance. Parental involvement had been included as a goal in education reform initiatives such as the ESEA of 1965, NCLB Act of 2002, the reauthorization of ESEA of 2004, Family Engagement in Education Act of 2011, and ESSA of 2015 (Duppong Hurley et al., 2017; Grant & Ray, 2018). These education reforms focused on school-based parental involvement as the key to school reform and student achievement (Park & Holloway, 2017). The study conducted by Park and Holloway (2017) reported that involvement activities concerning individual students enhanced individual achievement in reading and mathematics. Other researchers have explained the effectiveness of parental involvement in student achievement and the value of education at home (Perkins et al., 2016; Tang, 2015).

Home-based parental involvement is vital for establishing moral and educational development in children (Torre & Murphy, 2016). Stable family and community relationships, along with school-family partnerships, can significantly impact student success (Torre & Murphy, 2016). Parents hold the power of shaping a student's scholastic culture based on their engagement at home (Toren & Seginer, 2015). Home is also the place where parents can discuss future plans with their children, support with school work, and be involved in educational decision making (Ule, Zivoder, & du Bois-Reymond, 2015). Torre and Murphy (2016) explained that home-based parental

involvement is critical in establishing a community of parent engagement where parents, educators, students, and the community strive for a positive academic achievement for students.

Parental Support

Parents' role as the primary educator is crucial in a child's educational growth from elementary school (Edwards, 2016; Warnasuriya, 2018). Affective parental support at home with adolescents such as compliments, positive discussions regarding school, and encouragement can lead to better academic performance (Deslandes & Barma, 2016). Parents can be more involved depending on personal life circumstances or their perception of invitation for involvement. Parental support at home can be contingent on the level of school the child is in, resources from school, and the school climate. Brotman et al. (2018) described several studies pointing to parental support during early childhood years in their children's learning at home. Even as children grow into adolescents, invitations for involvement are the best predictor of home-based parental involvement (Deslandes & Barma, 2016). Musabelliu, Wiener, and Rogers (2018) highlighted the importance of parental involvement with adolescents and educating parents about the benefits of motivation, positive attitudes toward school, and improved parent-child relationships.

Parental Self-Efficacy

Parental educational involvement at home is dependent on several factors that are related to parental self-efficacy regarding their child's education (Toren & Seginer, 2015). The five factors that inspire parental educational involvement include (a) parents'

demographic and intrapersonal characteristics (educational and ethnical background), (b) the child (age, gender, and previous educational performance), (c) the teacher (age, gender, and ethnicity), (d) the school (climate, parental involvement), and (e) the neighborhood (opportunities, resources, and social networking; Eccles & Harold, 1996; Toren & Seginer, 2015).

Parents' demographic and interpersonal characteristics. Parents' demographic, educational, and ethnic background is the first factor, which can affect a parent's perceptions regarding academic attainment. The father's demographics and the child's characteristics determined the level of involvement and influenced children's literacy and language outcomes (Varghese & Wachen, 2016). Jeynes (2017) found that parental style, as well as parent-child communication of Latino parents, is more productive during the child's adolescent years. The effects of parental involvement in Latino youth were found to be the same at the elementary and secondary levels, where are in general, researchers have found to have a more significant impact at the elementary level (Jeynes, 2017; Simpkins, Estrella, Gaskin, & Kloberdanz, 2018). Mothers of different ethnical backgrounds reported having more parental involvement practices at home compared to school-based practices due to language barriers (Brotman et al., 2018). Oswald et al. (2018), on the other hand, reported that Hispanic parents were less involved in their child's learning compared to White parents. Parents' marital status, education, and employment status seemed to be a significant predictor in parental involvement in a child's education (Oswald et al., 2018). Oswald et al. (2018) observed that married

parents, parents with at least a high school diploma, and stay-at-home parents had a greater involvement compared to their counterparts.

The child. Toren and Seginer (2015) also found home-based parental involvement to have a significant impact on student achievement in adolescents compared to school-based involvement. Academic achievement also increased when parents used the authoritative parenting style, increase warm communication, and avoid harsh or psychological control with adolescents (Pinquart, 2016). The child's characteristics play an essential role in the level of parental involvement. Parents may feel more comfortable helping children with whom they get along (Van Petegem, Soenens, Vansteenkiste, & Beyers, 2015). Parental involvement starts to decrease by fourth grade, and by adolescents, parents are not as involved in their child's learning (Zolkoski, Sayman, & Lewis-Chiu, 2018). As the child's schoolwork becomes increasingly difficult, parents may feel less able to help and may have feelings of efficacy. Also, adolescents tend to want more autonomy but still appreciate parents' support in their educational endeavors (Steinberg, 2014). Dotterer and Wehrspann (2016) found that more parental involvement is associated with fewer behavioral issues at school among adolescents, which leads to higher academic achievement.

The teacher. Teacher practices incorporated into lessons can promote in-home and at school parental involvement. Parent-teacher relationships require consistent, effective communication between teacher and parent in order for adolescents to construct positive attitudes towards educational and social activities (Deslandes & Barma, 2016). Parent-teacher communication can occur during conferences, meetings, telephone

conversations, e-mail, written comments, and educational activities (Deslandes & Barma, 2016). Parents and teachers must earn each other's trust and recognize each other as partners in improving the adolescent's academic outcomes (Fishman & Nickerson, 2015). In many schools, parent-teacher communication is still unidirectional as parents tend to overprotect their child, and there is a lack of support for school administrators (Deslandes & Barma, 2016; Deslandes, Barma, & Morin, 2015). Teachers need to know specific strategies for involving parents and what supports they need for implementing these strategies.

The school. Hamlin and Flessa (2018) found that parents require support in engaging students in home-based learning. Specific school programs can encourage home-based and school-based parental involvement behaviors (Bartz, Karnes, & Rice, 2018). School administrators and other officials need to be mindful that parents may feel alienated as they move from elementary school to middle school based on the differences of the school. Heaton (2016) also indicated a decrease in the perception and participation score for home-based involvement during the middle school transition. It is vital for school officials to empathize with parents as well as to acknowledge the challenges involved in supporting their adolescents due to the various student needs and difficulties (Musabelliu et al., 2018).

School personnel may have preexisting beliefs about parental involvement and may feel it easier not to involve parents (Quay, 2018). Erdener and Knoeppel (2018) studied parental involvement among Turkish parents and found that parents perceive that schools are responsible for schooling their children. School administrators are also

challenged to better understand their changing communities due to an increasing number of minorities as well as English language learners (ELLs; Edwards, 2016). Erdener and Knoeppel recommended professional development for administrators and teachers to learn ways to increase parental involvement in their child's education. Effective parent involvement programs help train parents and families to successfully interact with the child at home to positively benefit student success (Bartz et al., 2018). Middle school administrators and other officials should focus on improving the quality and number of home-based parental involvement activities that are offered to parents to promote participation (Heaton, 2016).

The neighborhood. High-risk and low resource neighborhoods force parents to cope up with other external factors, often home-based parental involvement, as well as parenting style, which is less effective (Toren & Seginer, 2015). Low-risk neighborhoods provide resources such as youth programs that allow increased parental involvement. Leyendecker et al. (2018) explained that investing in the well-being of immigrant and refugee parents as well as promoting positive parent-child relationships can equip children with the necessary resources to be successful. Parents from higher socioeconomic backgrounds reported to more home-based involvement with their economic resources compared to parents from their lower-income counterparts (Puccioni, 2018). When a community is committed to improving student academic outcomes, it can have a lasting effect on the individuals in the community (Martinez & Wizer-Vecchi, 2016).

Parental Involvement

The United States Code (2004) defines parental involvement as "the participation of parents in regular, two-way, and meaningful communication, involving student learning and other school activities." Parental involvement is a multidimensional concept (Liu, 2019). Boonk et al. (2018) explained home-based parental involvement as activities and behaviors that supports student learning. El Nokali, Bachman, and Votruba-Drzal (2010) also include parental expectations, values, and attitudes regarding their children's education as part of parental involvement. Reading at home, high parental aspirations or expectations regarding academic achievement, communication regarding school, parental encouragement, and support for learning are activities between children and parents that have a high correlation with student achievement (Boonk et al., 2018). Benner, Boyle, and Sadler (2016) reported that parents' educational involvement continues to influence a child's lives later into their adult life.

Parental involvement activities that support reading and mathematics improved student achievement over time (Park & Holloway, 2017). Parents who motivate their children encourage them to explore and challenge their learning while providing them with positive reinforcements as well as resources (Warnasuriya, 2018). Parental instruction at home can occur through educationally-based cognitively stimulating activities such as visiting a museum (Brotman et al., 2018). Yotyodying and Wild (2016) found that the quality and quantity of parental instruction depended on parental aspiration. The level of parental education can also affect the quality of parental involvement (Hemmerechts, Agirdag, & Kavadias, 2017). Home-based parental

involvement was evident in elementary years, where parents had a positive effect on skill development for literacy and numeracy initiatives (Hamlin & Flessa, 2018). Parents' detailed knowledge about their child can be more potent in making personal connections to effectively communicate with their adolescent (Hyde et al., 2017).

Parental Communication

Home-based and school-based parental involvement contributes to effective communication in parent-adolescent relationships (Deslandes & Barma, 2016). In parent-adolescent relationships, parental communication regarding school-related activities, as well as their aspirations for their adolescents in eighth grade, significantly impacted academic achievement in tenth grade (Toren & Seginer, 2015). Many times, parent-adolescent communication alters as teens begin to distance themselves from parents. Some parents expect their adolescents to take responsibility for their academics and wait for an invitation before they get involved (Deslandes & Barma, 2016). Goodwin (2017) explained the use of powerful everyday messages to communicate parents' academic aspirations with the child, creating an internal motivation focused on the value of education, hard work, and sacrifice.

Amid the changes in parent-adolescent communication, parents must balance adolescent autonomy while being responsive and remain connected with their adolescent (Deslandes & Barma, 2016; Ross, 2016). Parents must communicate high expectations regarding their child's future and actively assisting them with the planning (Ross, 2016). Academic socialization, which is the way parents express value for academic achievement, is a crucial factor during parental involvement in adolescents (Brotman et

al., 2018). Hyde et al. (2017) found that moderate levels of communication, with increased elaboration but fewer conversations, resulted in positive student achievement. In autonomy-seeking adolescents, it is difficult to effectively communicate with an adolescent why he or she should value learning (Hyde et al., 2017). The concept of reactance is based on people's desire for freedom, and choice, when constrained externally, results in the person reacting oppositely to the external source in order to restore freedom (Van Petegem et al., 2015). Multiple, highly elaborated communication between parents and adolescents can stimulate reactance, which can negatively impact parent-adolescent relationships (Hyde et al., 2017).

Parental Involvement and Students' Academic Outcomes in Science

Parental involvement activities play a critical role in enhancing children's pursuing science. Home-based parental involvement activities have improved student achievement among middle and high school students (Hill & Tyson, 2009; Jeynes, 2007; Karaçöp, Akıllı, & Aksu, 2016; Perkins et al., 2016). Liou, Wang, and Lin (2019) showed that students' self-concept, utility value, and motivational beliefs played a role in parental involvement and science achievement. Gottfried et al. (2016) researched the role of parental stimulated curiosity and determined a definite relation to intrinsic motivation and achievement in science. Curiosity stimulating experiences can enhance the desire to learn, ask questions to find answers, and seek knowledge (Gottfried et al., 2016). The NGSS incorporated curiosity for science education since it evidenced greater engagement and interest in science course-taking and science careers during high school years (Eilks & Hofstein, 2017; Gottfried et al., 2016). Parents' socioeconomic status, as well as

education, generally determined the experiences that promoted curiosity. Students who are provided curiosity stimulating experiences to develop an identity toward seeking out science activities as well as choosing a science career.

Only a few studies have examined home-based parental involvement activities and science achievement at the middle school level (Morgan, Farkas, Hillemeier, & Maczuga, 2016). Morgan et al. (2016) observed significant gaps in general knowledge at kindergarten entry, which was a strong predictor of science achievement from third through eighth grade. Based on the findings from various studies, the United States science achievement gap can be reduced or eliminated by implementing policies to promote science equity (Morgan et al., 2016). The state NGSS tool kit for parents explains that NGSS promotes a new way of learning that allows students to do science in a more meaningful way. Hyde et al. (2017) found mothers' use of personal connections directly correlated with adolescents' interest in STEM-related courses. Wassell, Hawrylak, and Scantlebury (2017) demonstrated that high-quality parent-teacher interactions seemed to be useful for students in science classes, especially ELL students.

Barriers to Parent Involvement

Home-based and school-based parental involvement changes as a student transitions from elementary school to middle school (Inoa, 2017; Perkins et al., 2016). Parents often question their ability to assist their children academically in older grades (Zolkoski et al., 2018). According to Karibayeva and Bogar (2014), parents are becoming less engaged in their child's educational process due to barriers such as parents' education, lack of time and work communications, lower social status, and larger schools.

Perkins et al. (2016) add that parent-teacher communication also becomes more difficult in middle schools with a different teacher for each subject. Independence-oriented cultures like the United States stimulates reactance in adolescents when parents use a controlling parenting style (Hyde et al., 2017).

Additionally, the increased number of complex mental health issues in students, usage of social media, and other technologies, as well as other social shifts, warrant innovative parental involvement behaviors (Hamlin & Flessa, 2018). Parents show a need for enabling parental involvement through initiatives that improve skills for home-based learning as well as parent-child communication (Hamlin & Flessa, 2018). Parents' perceived barriers can negatively impact their sense of self-efficacy and prevent them from getting involved in their child's education (Wang et al., 2016).

Immigrant and refugee families can face additional barriers in their child's educational involvement. The trauma and stress of the experience can negatively impact parent-child relationships (Leyendecker et al., 2018). Intervention programs for immigrant and refugee families should address the mental health needs of both children and parents to promote positive parent-child interactions (Leyendecker et al., 2018). Teachers of ELL students recognized the barriers to home-based parental involvement but anticipated that parents would communicate and help with homework (Wassell et al., 2017).

Low socioeconomic status or low- income families face with time and energy constraints due to work schedules, lack of social support, and financial stress (Wang et al., 2016). Wang et al. (2016) reported that low-income parents tend to have low

expectations for their child's educational achievement due to difficulties in involvement such as resources, limited knowledge, and communication issues with the child. According to Tang (2015), low-income and ethnic-minority immigrant families are often intimidated by the school climate and feel unwelcome. Also, a parent's negative interactions during their own educational experience can impact how involved the parent is in their child's education (Edwards, 2016). Inoa (2017) states that Latino parents have multiple jobs or dual-income household, demanding work schedules, and language limitations. These parents are unfamiliar with the American educational system making it difficult to provide homework help (Inoa, 2017). Latino parent-teacher association members had negative experiences from other parents while participating in the association (Inoa, 2017). Teachers' attitudes and communication styles have reportedly made families feeling uncomfortable and disrespected (Latunde & Clark-Louque, 2016).

Another barrier to parental involvement involves school laws that are created to better support parents. (Robinson, 2016). The school choice laws were intended to improve parental rights regarding the education of their children. Robinson (2016) states that these laws do not provide any rights or responsibilities to parents regarding their child's education. If state legislatures and school reformers genuinely want to see a change in parental involvement, they have to be critical with the way parental involvement is incorporated into the school (Robinson, 2016). Baker, Wise, Kelley, and Skiba's (2016) study indicated parental solutions to some of the involvement barriers such as the school offering childcare for siblings, weekend activities, providing food on weeknight events as well as school arranged transportation. School administrators and

other officials need to move away from traditional views of parental involvement to improve parental engagement, especially home-based involvement (Baker et al., 2016).

Other Aspects of Parental Involvement Behaviors

Studies show that children in low-income families engage in less literacy and numeracy related activities at home compared to middle-income families (Hemmerechts et al., 2017; Puccioni, 2018). Evidence-based curriculum focused on literacy and social-emotional skills at school as well as at home increased classroom participation and improved academic achievement in preschool students (Bierman, Heinrichs, Welsh, Nix, & Gest, 2017). Puccioni (2018) found that Black and Hispanic heritage parents used limited vocabulary with their children and were less likely to engage in shared book reading. Black, Hispanic, and Asian Americans are less engaged in home-based involvement activities compared to White parents within similar socioeconomic backgrounds (Puccioni, 2018). Morgan et al. (2016) explained that science achievement gaps are evident in students at kindergarten entry and remain highly stable. Black children often display lower science achievement and slower science achievement growth (Morgan et al., 2016). Parental involvement in their child's education demonstrates that the child is central and boosts their self-confidence (Dotterer & Wehrspann, 2016). Additionally, Xu, Du, Wu, Ripple, and Cosgriff (2018) explained that the quality of home-based parental involvement has an impact on student achievement. Various approaches of parental involvement, such as parental over control, excessive pressure, could negatively impact student learning (Liou et al., 2019).

Cultural factors play a vital role in the relationship between parental involvement and student achievement (You, Lim, No, & Dang, 2016). Inoa (2017) reported that the emotional well-being of the child was more important to Latino parents than academic achievement. Parental involvement behaviors such as parental supervision and family rules are positively related to student achievement in Eastern cultures, which is not consistent with research from Western cultures (You et al., 2016). Immigrant families were more involved in home-based parenting due to their comfort in engaging in conducting activities at home rather than in an unfamiliar cultural setting requiring English skills (Tang, 2015).

Summary and Conclusions

Parents are the primary and ongoing educators of their children at home, school, and in the community (Bashir &Bashir, 2016). Although parental involvement declines during adolescence, the parent's role continues to be a crucial factor for adolescent development and positive academic achievement (Deslandes & Barma, 2016). Creating personal connections is a powerful tool for parents to use to communicate with students about school (Hyde et al., 2017). Oates (2017) recommends that schools and families share responsibility and contribute to a reciprocal process to improve home-based parental involvement in middle schools. Additional research is needed to gain a deeper understanding of parental involvement and academic outcomes (Pinquart, 2016).

Chapter 3: Research Method

The purpose of this basic qualitative study was to explore administrators' and science teachers' perceptions of home-based parental involvement behaviors regarding middle school students' academic outcomes in science education. This study provided valuable insights into how administrators and science teachers perceive home-based involvement behaviors and their influence on academic outcomes in science. Chapter 3 includes the research design and rationale for choosing qualitative research and the basic qualitative study design. The role of the researcher, the methodology including participants and participant selection, interview protocols (Appendices B & C), plan for data collection, and the data analysis plan are described. In this chapter, I also present ethical procedures and how the trustworthiness of data will be enhanced. I conclude with a summary of the chapter.

Research Design and Rationale

This section includes the research questions of this basic qualitative study. The central phenomenon of the study is stated and explained. I also explain why a basic qualitative approach is the best option for understanding administrators' and science teachers' perceptions of home-based parental involvement regarding middle school students' science outcomes.

Research Questions

The research questions addressed in this study are as follows:

- RQ1: What are administrators' perceptions about home-based parental involvement behaviors regarding middle school students' academic outcomes in science education?
- RQ2: What are science teachers' perceptions about home-based parental involvement behaviors regarding middle school students' academic outcomes in science education?

The central phenomenon of this exploratory, basic qualitative study was the administrators' and science teachers' understanding of home-based parental involvement behaviors regarding middle school students' academic outcomes in science. The qualitative approach focuses on an in-depth understanding of the phenomenon within the context of the study (Silverman, 2016). A quantitative approach focuses on numerical data, whereas a qualitative study focuses on the perceptions of the participants through in-depth data collection (Creswell, 2014). According to Merriam and Tisdell (2016), "Qualitative researchers are interested in understanding how people interpret their experiences, how they construct their worlds, and what meaning they attribute to their experiences" (p. 15). The purpose of a basic qualitative study is to simply understand how participants comprehend themselves without any secondary goals (Merriam & Tisdell, 2016). Yin (2015) further explained in a basic qualitative study that the research is centered on how and why questions, and the researcher has no direct control over behavioral events.

This basic qualitative study addressed the gap in practice of home-based parental involvement behaviors in influencing middle school students' science outcomes.

Qualitative data collection included interviews with administrators and science teachers from the middle schools in the district. The goal was not to develop a theory, so a grounded theory study approach was not appropriate (Merriam & Tisdell, 2016). Also, because this study was not focused on a particular bound system, I rejected the use of a case study approach (see Merriam & Tisdell, 2016). Gathering the essence of an experience was not the purpose, so phenomenology was not an appropriate approach to the study (see Merriam & Tisdell, 2016). Likewise, ethnography was not the best strategy as this approach is focused on understanding the behaviors or culture of a group and requires the researcher to be a participant-observer (see Merriam & Tisdell, 2016). In contrast, this study focuses on the perception of individuals.

A basic qualitative study strategy best served this study due to the need to understand "meaning, understanding, process" of the participants (see Merriam & Tisdell, 2016, p. 42). Because there have not been any parental involvement studies conducted in the school district, it was crucial to collect in-depth data with context-dependent descriptions on administrators' and science teachers' perceptions of home-based parental involvement behaviors to understand the factors that underlie in this problem. The findings from this study can lead the way to more explorations in other settings. This basic qualitative study allowed administrators and science teachers to share their understandings and views on home-based parental involvement, which is fundamental to constructing effective, successful strategies and programs to influence science outcomes. A basic qualitative study allows for exploration and description of themes.

Role of the Researcher

The purpose of the researcher in a basic qualitative study is to collect, analyze, and interpret data (Merriam & Tisdell, 2016). The researcher is not a participant-observer for basic qualitative studies. In this study, I collected data through semistructured interviews about middle school administrators' and science teachers' perceptions of home-based parental involvement behaviors regarding academic outcomes in science education. The interviews were conducted separately and in a virtual setting. I transcribed and coded the data with categories. Patterns of categories were inductively sought to generate themes for each research question.

I am currently a middle school science teacher, teaching seventh and eighth grade students. I have 6 years of experience in a middle school classroom and have been employed by the district being studied for 7 years. This role allows me to attend parent conferences as well as professional development meetings concerning student achievement. I hold no supervisory role. I am the researcher in this study.

My role in this study was to conduct a qualitative study on the topic of home-based parental involvement behaviors, one that affects my local setting and can have a significant impact on my students. The participants in this study are middle school administrators and science teachers in the district. My role as a nonparticipating interviewer was clearly explained to the participants. I conducted interviews, transcribed them, and coded data. I addressed my personal biases through self-reflection. As the researcher, I also maintained open communication with the participants in the study throughout the data collection and analysis phases. I also allowed participants to review

the transcription for accuracy and reduce any personal bias that I may have included during data analysis. I do not have any power or authority over the administrators and science teachers who participated in the study. Therefore, there was no risk of coercion. Participation was voluntary, and consent was collected before interviews. I do not hold any bias against the administrators or science teachers who participated in the study. Therefore, there was no apparent conflict of interest in the study.

Methodology

In this section, I discuss the methodology of this basic qualitative study, which was used to explore the administrators' and science teachers' perceptions of home-based parental involvement behaviors regarding middle school students' academic outcomes in science education. This exploratory design used semistructured interviews to gather data from administrators and science teachers. A basic qualitative research design was used to understand participant experiences by analyzing the meaning behind experiences (Patton, 2015). This section also includes participant selection, interview protocols, data collection, trustworthiness, and ethical procedures.

Participant Selection

The school district setting for this basic qualitative study was in the northeastern region of the United States. This district was considered a large urban school district, with over 11,500 students and 22 schools or programs, including two high schools and four middle schools in the 2018-2019 school year. 59% of the students in the district were eligible for free and reduced-price lunch (State Department of Education, 2019). The district also comprises approximately 16% ELLs and approximately 15% of students with

disabilities. The school district had approximately 49% of students identifying as Hispanic or Latino, approximately 28% as White, approximately 16% as Black or African American, and approximately 5% as Asian comprising the enrollment for the 2018-2019 school year (State Department of Education, 2019). The school district had approximately 753 full-time general education teachers and approximately 45 administrators or coordinators.

I used several criteria to select the participants. Administrator participants were selected to reflect the roles of principal, assistant principal, and dean of students. Administrator participants had to be currently working at a middle school under the study or have worked at the district in the past 2 years. Science teacher participants were selected to reflect the roles of science teachers in different grades at the middle school level. Participants were selected to represent each of the three grade levels in middle school. The purpose of this study was not to generalize the findings; therefore, purposeful sampling ensured that each participant would offer high value and a deeper understanding of the experiences related to home-based parental involvement (see Creswell, 2014). I selected participants using maximum variation sampling, a purposeful sampling strategy that aims for heterogeneity (Cohen & Crabtree, 2006).

The study consisted of 16 participants, and saturation was reached. This small sample size ensured that the data collected was adequate to provide a rich and extensive description (Creswell, 2014). I selected 11 administrators who were currently working or have worked at the middle schools in the district under the study. I also selected 12 science teachers who were currently working at the middle schools in the district under

the study. To produce data-rich maximum variation sampling, I chose only the administrators who have been at a middle school for at least one year. I also chose only the science teachers who have taught science at a middle school for at least 3 years. This sampling maximized the diversity related to the research questions (Cohen & Crabtree, 2006). Saturation occurred with 16 participants in this exploratory qualitative study.

Participants were contacted via email to volunteer for the study, explained the study, their participation in the study, the use of data, and findings. Participants were then contacted via phone or email to schedule the face-to-face interview. According to Creswell (2014), compelling interviews start with small talk that provides a safe environment for participants to feel comfortable and share. Participants needed to understand the protocol for the interview, and I ensured that participants were at ease to obtain quality data (Creswell, 2014).

Interview Protocols

Data can be collected through highly structured, semistructured, or unstructured interviews. I used semistructured interviews with both the middle school administrators and science teachers at the district to collect data. The semistructured interview was the appropriate choice for this study, providing descriptive data regarding perceptions of home-based parental involvement (Creswell, 2014). In-depth interviews are a technique used in qualitative research that involves predetermined open-ended questions allowing participants to discuss their understandings and ideas freely (Creswell, 2014). I followed an interview protocol and asked prepared questions that aligned with the research

questions. The interview protocol for administrators is presented in Appendix B. The interview protocol for science teachers is presented in Appendix C.

Interview questions were broad enough to allow participants to provide rich data within the constructs of the conceptual framework which were aligned to the problem. The interview was conversational. Yin (2015) noted that the conversational style in interviews allowed for a more natural two-way interaction between the interviewer and the interviewee. The interview was audio-recorded and followed a conversational style. Open-ended questions allowed interviewees to engage in a discussion and build on their explanation so I could understand and make meaning of the interviewees' perceptions.

Hoover-Dempsey and Sandler's parent involvement model served as the conceptual framework and guide when constructing interview questions (Hoover-Dempsey & Sandler, 2005). The qualitative interviews allowed participants to explore their perceptions about home-based parental involvement behaviors. This type of interview naturally lent itself to follow-up questions when clarification was needed. I avoided asking questions that implied a specific answer from the participant and could have harmed the validity of the interview. To improve validity, I asked two teachers who were not part of the study to review the interview questions. The questions were revised for clarity based on their feedback.

Procedures for Recruitment, Participation, and Data Collection

The sample frame was the employee district database. I sent generic emails to 11 middle school administrators and 12 middle school science teachers requesting their participation. All recruitment was done ethically, and participation was voluntary.

To begin data collection, I followed the procedure established by the district to gain their approval to conduct the study in the research setting. First, I sought approval from the Walden University Institutional Review Board (IRB). Once approval was granted, eligible participants were invited in person or via email with a detailed consent form. The study was explained in person or via email to all potential participants, including privacy, confidentiality, and voluntary participation, the process of withdrawal, and security and disposal of data. Participants were able to ask questions regarding the study or about their participation during the initial communication or at any time during the data collection process. Participants were notified of the potential risks and benefits of participating in the study. When eight administrators and eight science teachers volunteered to participate in the study, the interview process was communicated to each participant.

The interview was done once in person at a mutually agreed-upon time and place with an audio recorder or over the phone with an audio recorder. Interviews were conducted in a private, comfortable place, away from distractions. Participants were given ample time to review the process, ask questions, complete interviews, and ask any follow-up questions. Once the interview was transcribed, a copy was sent to each participant to review the transcript and make any corrections. The accurately transcribed data were coded and further analyzed.

Data Analysis Plan

Data were collected through semistructured interviews with administrators and science teachers at the study site to understand perceptions of home-based parental

involvement behaviors regarding middle school students' academic outcomes in science education. Data were analyzed for administrator and science teacher participant groups to identify similarities in their perspectives. The interviews were transcribed from audio recordings after each interview, before data analysis. In vivo coding method was used as an inductive coding process to organize data (Ravitch & Carl, 2019). Data analysis of the transcripts proceeded by using open coding to narrow the data to create a data set, which was further analyzed. Axial (pattern) coding was utilized to categorize the codes (Ravitch & Carl, 2019). Further analysis of themes, as suggested by Ravitch and Carl (2019), was used to group data and develop findings.

Results were presented by themes. Semistructured interviews allowed for follow up questions to clarify any discrepancies and ensure quality in data collection. The data analysis used in vivo coding method to generate specific words, phrases, and sentences that are highlighted in the interviews (Ravitch & Carl, 2019). These words, phrases, or sentences were then transferred to a coding sheet where themes and categories were identified for further analysis.

There may be discrepant responses during the data collection. Discrepant responses are data that is different from the trend or developing themes or challenge preconceived notions that allow for alternative or more complex interpretation es (Merriam & Tisdell, 2016; Ravitch & Carl, 2019). I considered all data during analysis and prudently reviewed the data for any evidence of discrepant responses. All data were included in the findings of this study. After I carefully analyzed the data, no discrepant responses were found.

Trustworthiness

Researchers use credibility, transferability, dependability, and confirmability to enhance trustworthiness in qualitative studies (Houghton, Casey, Shaw, & Murphy, 2013; Silverman, 2016). Validity can be increased during data collection and analysis by using member checking (Ravitch & Carl, 2019). Trustworthiness of the study was a way to assess the rigor of the research so as to be valid and acceptable in the field (Ravitch & Carl, 2019). Ravitch and Carl (2019) also suggested that technical strategies should be implemented in relation to the complex nature of the qualitative research process to improve validity in data and analysis. Below, I explain how I improved credibility, transferability, dependability, and confirmability.

Credibility

Credibility started with a well-structured research design process (Ravitch & Carl, 2019). Qualitative research validity can be increased by triangulation, member checks, and presenting thick descriptions (Ravitch & Carl, 2019). Data were triangulated by interviewing two different groups, administrators, and science teachers, with different perceptions. I also enhanced credibility by allowing participants to review the interview transcripts and make any necessary changes. The transcripts were emailed after the interview so that participants could make changes and return the transcript with ease. Saturation in the literature was achieved through the literature review, where seminal work on home-based parental involvement behaviors or science outcomes from the past 5 years was discussed.

Transferability

Transferability or external validity focused on qualitative research to apply to other contexts while still being specific (Ravitch & Carl, 2019). This qualitative research study was designed to express participants' experiences, which were not intended to be transferable but could be useful to other similar settings. Transferability can be achieved through a detailed description of data, which allowed for comparison and generalization of the research (Ravitch & Carl, 2019). In order to increase transferability, participants were carefully selected within the population to ensure the most variability possible. Rich narrative data were collected during the interviews, which were then carefully analyzed to establish the context of the study so that future research can be conducted on home-based parental involvement behaviors.

Dependability

Dependability can be increased by following the research protocols outlined by Walden IRB. An audit trail was used to improve dependability in this basic qualitative study. The audit trail required the researcher to explicitly describe the process of the study to possibly allow another researcher to follow and obtain similar results (Ryan-Nichols & Will, 2009). Dependability included following step-by-step plans during each semistructured interview. Participants were asked the same interview questions in the same order. Follow-up questions were only asked to elucidate participant experiences further. Notes were recorded during or following each interview, along with an audio recording. Transcripts of the interview were rechecked for accuracy. The research process was also thoroughly explained to ensure reproducibility.

Confirmability

Confirmability also referred to the accuracy and neutrality of the data (Ravitch & Carl, 2019), which was achieved by recognizing personal bias regarding the perception of home-based parental involvement. I was aware of my role during the interviews and kept an open mind to understand what the data revealed by keeping a researcher's journal without any information which could identify participants. The triangulation of data sources also helped to achieve confirmability (Ravitch & Carl, 2019).

Ethical Procedures

In order to maintain ethical standards of the study, participants were assured confidentiality and clearly informed regarding their consent and voluntary participation. The informed consent form was signed and completed by each participant to ensure they were aware of the purpose of the study, the confidential nature of the research, anticipated risks, disposal of data as well as the procedure for exiting the study. Maintaining the confidentiality of the participant was a significant ethical concern during this study. Unique identifiers were used to conceal names and any other identifying data. All data were stored in password enabled computers, and all documentation were secured in a locked home file cabinet of the researcher. The research was conducted once Walden IRB approved the proposal phase of the study.

Summary

The purpose of this basic qualitative exploratory study was to understand administrators' and science teachers' perceptions of home-based parental involvement behaviors regarding middle school students' academic outcomes in science education.

This chapter contained the study design, including participant selection, the interview protocol created from the Hoover-Dempsey and Sandler model, instrumentation, procedures for recruitment and participation, data collection, data analysis plan, processes for improving trustworthiness, and ethical procedures. Semistructured interviews were transcribed, coded, and arranged by themes. The results of this study provide meaningful insights into administrators' and science teachers' perceptions of home-based parental involvement in students' academic outcomes in science. In Chapter 4, I present the results of the study based on the research questions.

Chapter 4: Results

The purpose of this basic qualitative study was to explore administrators' and science teachers' perceptions of home-based parental involvement behaviors regarding middle school students' academic outcomes in science education. Using a basic qualitative design, I conducted semistructured interviews to understand the perceptions of middle school administrators and science teachers. From the data collected in this study, themes emerged that identified administrator and science teacher perceptions, which may lead to an increased insight into home-based parental involvement in improving student academic outcomes in science.

The research questions addressed in this study were:

- RQ1: What are administrators' perceptions about home-based parental involvement behaviors regarding middle school students' academic outcomes in science education?
- RQ2: What are science teachers' perceptions about home-based parental involvement behaviors regarding middle school students' academic outcomes in science education?

In Chapter 4, I describe the setting and data collection procedures, as well as details of the data analysis process. The presented results of the study are based on the data that were collected and analyzed.

Setting

This basic qualitative study included eight middle school administrators and eight middle school science teachers from a district in the northeastern region of the United

States. The pool for administrator participant selection was 11, which included principals, assistant principals, and a dean of students. The pool for teacher participants was 12. The interviews were conducted virtually, using Google Meet, and audio recorded at the date and time requested by the participant. Recruitment resulted in having participants from all four middle schools in the district. I am currently an educator at one of the middle schools, but I hold no supervisory role. Due to the COVID-19 pandemic, all schools in the district had implemented distance learning. Participants shared their perceptions related to the study.

Participant Demographics

The criterion for administrator selection was that they had to be currently working as a middle school administrator or have worked as a middle school administrator in the last 2 years. All administrator participants were currently working as a middle school administrator with varying number of years of experience. Administrator participants included principals, assistant principals, and a dean of students. The criterion for teacher participant selection was that they had to be currently working as a middle school science teacher at any of the three grade levels. All teacher participants were currently working as a middle school science teacher, teaching one of the three grade levels (Grades 6-8), with at least 3 years of teaching experience.

Data Collection

The data collection procedures began after receiving approval from the Walden University IRB (approval # 06-05-20-0599848) and the permission of the school district. Following the guidelines of the research accountability director at the school district, I

notified principals of the study to obtain permission to conduct the study. Once the IRB approval was obtained, it was submitted to the research accountability director at the school district. With the school district's permission to conduct the study, I sent emails to potential participants explaining the study and asking them to reply with their consent if they are interested. Sixteen participants volunteered for the study. Data were gathered from virtually conducted semistructured interviews.

Semistructured Interviews

Virtually conducted semistructured interviews were the only form of data collection for this basic qualitative study. After sending multiple email invitations to 23 recruits, eight administrators and eight teachers returned the consent form expressing their interest in the study. No volunteers were excluded from the study. The administrator and teacher participants were asked the same seven interview questions with slight variations on the probing questions based on participant response. Follow-up questions were used as needed. Interview questions were carefully worded to align with the research questions. The eight administrators represented all four middle schools in the district and represented three levels of administration: principal, assistant principal, and dean of students. The eight science teachers represented three of the four middle schools and all three grade levels.

All potential participants replied to the invitation email with the words "I consent." Each participant was contacted via email to schedule the interview. Participants were able to choose a time and location that was most comfortable for them to enhance confidentiality. I recorded participants' names and interview times in a planner. A three-

number code was assigned to each participant, and only these codes were used on the interview question notes and transcriptions to ensure confidentiality. A pseudonym with a letter and a number (e.g., A1 = Administrator 1, T1 = Teacher 1) was used to further refer to participant data.

All participants were individually interviewed once virtually in real time using Google Meet. The interviews were conducted in a 2-week time frame. I used the interview protocol for administrators (see Appendix B) and science teachers (see Appendix C). Although 30-45 minutes were allotted for each interview, the interviews lasted from 15 to 35 minutes.

At the beginning of each interview, I reviewed the consent form with the participants and asked them if they had any questions. I reminded each participant that the interview was being audio recorded for transcription. I also explained that I would be the only person listening to the recordings and that the purpose was to ensure accuracy. I informed the participants that they would receive an email from me, asking them to review the transcript. I reviewed the steps I would take to maintain their confidentiality and explained that audio recordings, transcripts, consent forms, and participant names would be stored in a password-protected file and that any written notes or transcriptions would be in a locked file. Each participant was given the opportunity to ask questions.

After each interview, a copy of the transcript was emailed to participants for reviewing and verifying the accuracy of the transcript. Only two participants made corrections to the transcription. I used Google Meet's recording function to audio record the interviews. The audio recordings were saved in a password-protected folder. I

transcribed interviews using a word processor, and all identifying information was removed. The transcriptions were saved in a password-protected file. One variation that occurred from the proposed data collection process was conducting interviews virtually in real time and using Google Meet for audio recording due to the COVID-19 pandemic.

Data Analysis

After transcribing the semistructured interviews, I carefully read through each transcript and highlighted keywords and phrases to derive in vivo codes. The in vivo coding method provided for data to be sorted and organized into groups. The data were further analyzed through open coding to complete the initial phase of data analysis. After I analyzed the first round of coding, data were categorized using axial coding. This second round of coding allowed broader categories to form from the initial round. A category groups together codes of shared characteristics (Miles, Huberman, & Saldaña, 2013; Saldaña, 2016). For example, two in vivo codes from the initial phase might have been identified as “assisting child at home” and “understanding classroom expectations and procedures.” During axial coding, I combined these two codes into a broader category of “Home-School Communication.”

The categories were further grouped into a high-level category, which helped identify emerging themes (Miles et al., 2013; Saldaña, 2016). I created a list of themes in an outline format to reflect on the study, understand the data, and make sense of the lessons learned from the study. Analytic memoing was used to reflect and relate themes to the research questions of the study. I continued to analyze the interview transcripts to ensure that no additional themes emerged. The three themes that emerged from

administrators' and science teachers' perceptions of home-based parental involvement regarding science outcomes included (a) improved collaboration between administrators, teachers and parents, (b) design and implement programs to enhance home-based parental involvement in science, and (c) quality interactions between parent and student.

Discrepant Cases

According to Merriam and Tisdell (2016), discrepant cases in qualitative data collections are data that dispute or disconfirm the developed findings. As I analyzed the data collected, I reviewed the transcripts and codes and searched for any data that did not fit the emergent themes. There were no alternative themes that were evident during the data analysis process.

Results

The purpose of this basic qualitative study was to explore administrators' and science teachers' perceptions of home-based parental involvement behaviors regarding middle school students' academic outcomes in science education. The research questions were developed to explore the perceptions of administrators and science teachers regarding home-based parental involvement and middle school students' science outcomes. The data analysis process produced codes that were further analyzed for patterns and categorized. The transcripts were reviewed until no new codes were observed. The categories were further analyzed into high-level categories, and finally, themes emerged (see Table 1).

Table 1

High-Level Categories and Themes

High-level categories	Themes
Obstacles of home-based involvement in science; Support and communication between administrators, teachers, and parents	Improved collaboration between administrators, teachers, and parents
Promote parental self-efficacy; Generate curiosity	Design and implement programs to enhance home-based parental involvement in science
Challenges due to low parental involvement; Parent-student collaboration	Quality interactions between parents and students

Theme 1: Improved Collaboration Between Administrators, Teachers, and Parents

Interview data from administrators and science teachers revealed the need for improved home-school collaboration. Participants talked about the obstacles of home-based parental involvement due to the lack of information and skills that parents have in order to support their students. A4, A6, A8, T3 acknowledged that science has not always been at the forefront of the curriculum because schools have been focused on improving math and ELA scores. Teacher participants T3 and T4 described the need for improved teacher support from administrators in order to increase more parental involvement. Participants emphasized the importance of ongoing communication and the need to build relationships with families.

Participant T1 stated, “The administrators, teachers, and parents need to have clear communication of the ideas, the expectations (what is expected of the child, what the child needs to do) to help the child.” Administrator and science teacher participants A2, A3, T1, T3, T5, and T6 explained that parents need to be informed of what happens during school and in class. Participant A4 stated, “Students do better when administrators, teachers, and parents are all aligned. Once students know that we share that common vision that all kids can learn and are capable of great things, then they become focused on their learning.”

There were some disparate responses related to participants’ views on the roles of administrators, teachers, and parents. A1, A3, and A7 expressed their current role from a leadership standpoint of supporting teachers rather than having direct interactions with parents about science. Teacher participants T1 and T3 expected frequent parental interactions with administrators regarding science. T2 and T4 expected teachers to be more available to parents. Participants also had different expectations of parents regarding parental involvement. Participants T1, T3, and T5 expected parents to play an active role in the student’s education, whereas T2, T4, T6, A1, and A3 wanted additional involvement but understood the struggles many parents were facing. These participants felt that parental involvement would increase if parents had the skills and resources necessary to assist their child. A2, A4, and A5 expressed that parents will not reach out unless there is a continuous effort on the school’s part to get parents engaged.

Theme 2: Design and Implement Programs to Enhance Home-Based Parental Involvement in Science Education

Theme 2 addressed the urgency of classes or activities that are designed to help parents to understand the science curriculum. Participants frequently expressed that many parents lack the skills needed to assist middle school students with science-related tasks. Administrator participants A1, A2, A3, A6, and A8, suggested educating parents or providing workshops around how to help their child. A1, A2, A3, A5, A6, and A7 also described the need to design a long-term solution, a systemic structure to increase home-based parental involvement.

A1, A4, A5, A7, T3, T5, T6, and T7 discussed the additional support and content resources needed for immigrant families. Participant T5 stated:

> With the growing ESL population, parents do not know what is going on because they do not understand. Many parents are working two jobs, and both parents are working, so there is a large period of time when students are alone at home. Creating some kind of program that is continuous before school starts or during the school year where parents can come into the school where everything is translated for them. These programs can help parents help their children so that they feel like they are part of the school and the community. If the program was developed, it would help more parents of ESL students to get involved and become part of the community at school and maybe volunteer at the school.

The resources provided to parents should promote parental self-efficacy. A8 stated, “give parents tangible resources in layman terms so that they can apply it at home.” Participants

A6, A8, T6, T7, and T8 discussed parents learning, being curious, and having fun with their students as they explore science together. Administrators and teachers were passionate about expressing the need to support the parents with the necessary tools for student success. Administrator participant A6 stated,

> If a student has a parent that is generally involved in helping with homework, then he/she would probably ask for help with science homework. We also have a large percentage, about 50% of our students live in homes where parents don't have the ability to help. So, I would guess that by the time the student gets to middle school, they probably are not really asking for a lot of help based on their prior experience of knowing that their parents are unable to help. It does get to a point where parents don't have the skills to really assist their child with homework. During distance learning, many parents reached out to us at the school because they didn't know the answers. They can't help because they just don't know. It was not because they didn't want to help; they didn't know how to. I saw that specifically around distance learning with science and math tasks.

Administrators A1, A2, A4, A6, and A7 shared that this is an area of need, and more work needs to be done to provide better support for parents who can intern support and engage students. Distance learning due to COVID 19 revealed some of the parental struggles specific to science. Participants T4, T8, A2, A5, and A6 noticed that parents played a major role in engaging students in learning during distance learning even though parents did not always have the tools to support the student. Participants T2, T3, and T7

differed on parental engagement during the pandemic and stated that few parents reached out, and as a result, student grades suffered.

Theme 3: Quality Interactions Between Parent and Student

Theme 3 addressed parent-student quality interactions. Participants emphasized the elements of successful parent-student interactions. Administrators and teachers expressed the need for quality strategies to promote parent-student engagement at home in relation to science outcomes. A2, A6, T3, and T7 suggested parents ask questions, sit down with the student, and be more involved.

Teacher participant A7 highlighted that "At the middle school level, kids are becoming more autonomous. There is a push-away factor. Students do not want their parents to be involved in the learning." Participant A4 stated:

> Some parents are able to help. Some, in my opinion, based on my conversations with families, are not able to help. We have a large language barrier at the middle school, and we have a large group of students who we call are school dependent. This means if assignments are not completed in school, it is really difficult for students to complete it at home because the parents do not understand or the parents are working a second or third job. Parents are not there to provide that support.

When asked, "in your opinion, how often do you believe students ask for help at home with science-related assignments?" The responses varied. A3, A4, A7, T1, T2, T3, T4, T6, and T7 stated that students do not ask for help with science assignments. A1, A2, A6,

A8, and T5 said it depended on the assignment as well as students' previous experience with receiving help from parents. A5 and T8 felt that students do ask for a lot of help.

Evidence of Trustworthiness

Trustworthiness is enhanced through credibility, transferability, dependability, and confirmability. The validity of qualitative research is based on the trustworthiness of the research (Yin, 2015). Throughout this study, I ensured the consistency and reliability of the data collected. This section describes the steps that were taken to ensure trustworthiness in the data analysis process.

Credibility

Triangulation and member checking were used to establish credibility. Triangulation of data from different sources provided the validity and reliability of the data collected (Merriam & Tisdell, 2016). Data were gathered from interviews of administrators and science teachers, two groups with different perspectives. Member checking was used to ensure data were not misinterpreted and to checked for accuracy. According to Merriam and Tisdell (2016), member checking minimizes misunderstanding and misinterpretation of participants' experiences. Interview transcripts were emailed after conducting the interviews, and two participants returned the transcripts with changes. No changes were made to the data or findings.

Transferability

Transferability was achieved through thick descriptions of the data collected. Rich narrative data were collected during the semistructured interviews, which was carefully analyzed. Results were reported with quotes that supported in providing a thick

description. This established the context of the study for future research on home-based parental involvement behaviors and science outcomes. Participants were carefully selected from within the school district to ensure the most variability possible.

Dependability

Dependability was increased by carefully following the research protocols outlined by Walden's IRB. A step-by-step interview protocol was carefully followed by asking the participants the same questions in the same order. Follow-up questions were asked only when needed. An audit trail included a reflective journal (Merriam & Tisdell, 2016). The journal served as a means to organize the events of the research study as well as to reflect on data collection, analysis, and the progression of the study. It also allowed me to be aware of my personal bias toward participant responses.

Confirmability

Confirmability was ensured through the self-reflection and triangulation (Merriam & Tisdell, 2016). I reflected on my personal bias regarding the perceptions of home-based parental involvement. The analytic memos during data analysis also aided in reflecting on the content of the interview responses. Triangulation strategies that were implemented also helped to achieve confirmability.

Summary

In Chapter 4, I presented the results for this study. The first section discussed the setting for this basic qualitative study. The next sections included Data Collection, Data Analysis, and Results. I explained the data collection procedures, data analysis process,

as well as the themes that emerged. The results of the study were presented by themes. The last section included evidence of trustworthiness.

The middle school administrators' perceptions of home-based parental involvement behaviors regarding students' science outcomes varied on role construction. Administrators took a leadership standpoint of assisting and encouraging science teachers, whereas teachers expected frequent interactions from administrators. The emergent theme was improved collaboration between administrators, teachers, and parents. The science teachers' perceptions of home-based parental involvement behaviors regarding students' science outcomes were similar about educating the parents about the new science curriculum. Administrators and teachers felt that efforts need to be continued in designing and implementing programs to enhance home-based parental involvement, which was the second theme. The third theme that emerged from this study was quality interactions between parent and student.

In Chapter 5, I discuss the interpretation of the findings and limitations to the study. My recommendations for future research and implications for positive social change are also presented. Finally, I conclude the study.

Chapter 5: Discussion, Conclusions, and Recommendations

The purpose of this basic qualitative study was to explore administrators' and science teachers' perceptions of home-based parental involvement behaviors regarding middle school students' academic outcomes in science education. The problem that prompted this study was that administrators and science teachers lack an understanding of home-based parental involvement behaviors regarding middle school students' science outcomes. The study's implications for positive change include having current parental involvement data that are specific to the district as well as increased insight into home-based parental involvement behaviors for improving middle school students' academic outcomes in science.

The key findings of the study revealed that participants viewed parents as partners and parental involvement as a beneficial tool for students' science outcomes but recognized barriers that parents faced. Participants noted that the schools' focus was on student remediation, and increased parent involvement can improve student outcomes. Participants realized the need for parent support and collaboration to meet the challenges of home-based parental involvement with middle school students in science education. Participants expressed the need for programs that promoted home-based parental involvement but varied on the frequency or types of programs. Participants also recognized the need for quality interactions between parents and students.

Interpretation of the Findings

The results of this study confirmed the findings of peer-reviewed research presented in Chapter 2. Specifically, administrators and science teachers had positive

beliefs about home-based parental involvement and student outcomes, findings that were noted by Deslandes and Barma (2016) as well as Torre and Murphy (2016). Perkins et al. (2016) found that home-based parental involvement activities improved student achievement. Toren and Seginer (2015) also found home-based parental involvement to have more impact on adolescents' academic outcomes than school-based involvement.

In the literature review, I discussed several themes that overlap. Those overlapping themes were parental support, parental self-efficacy, parents' demographic and interpersonal characteristics, parental involvement, parental communication, parental involvement, and students' academic outcomes in science, and barriers to involvement. The results of the study showed that administrators and science teachers recognized the need to educate parents to incorporate science into their daily lives. Participants had varied ideas about the types of programs or activities focusing on understanding the science curriculum and improving parent-child relationships. They mentioned bringing parents into the school to continue the conversations at home and enhancing home-based parental involvement. Participants noted that there is weekly communication regarding activities send from school but realized there needs to be more collaboration between parents, teachers, and administrators.

The conceptual framework for this research study was based on the Level 2 learning mechanisms of Hoover-Dempsey and Sandler's (2005) parent involvement model. Level 2 has four learning mechanisms (instruction, modeling, reinforcement, and encouragement) that are used by parents during home-based parental involvement. The first theme of improved collaboration between home and school would allow parents to

encourage students at home and reinforce positive behaviors and academics. The second theme, designing and implementing programs to enhance home-based parental involvement in science education, focused on learning mechanisms, instruction, and modeling that would allow parents to explain science-related topics and model positive school-related behaviors adequately. The third theme of quality interactions between parent and student also focused on learning mechanisms, modeling, and encouragement.

Limitations of the Study

This basic qualitative study was confined to a district in the northeastern region of the United States. Transferability of the findings was limited to middle school administrators and science teachers at this district; therefore, outcomes may not apply to other schools. The study's population was limited to administrators and science teachers from the district's middle schools. In qualitative research, the sample size tends to be small to support in-depth description that is vital to the method of inquiry (Merriam & Tisdell, 2016). The sample size for this study was limited to eight administrators and eight science teachers who volunteered for the study. The 16 participants provided rich descriptions to the interview questions.

Dependability was limited to the self-reports of participants. I carefully followed the interview protocol step-by-step to obtain rich and thick descriptions of the participants' experiences during each semistructured interview. I used follow-up questions during the interview process to improve dependability. Interviews were recorded, transcribed, and rechecked for accuracy. Data saturation was evidenced by the recurring responses of the participants.

Recommendations

The results of the study indicated that administrators and science teachers perceived positive relations between home-based parental involvement and student outcomes. The results showed areas of improvement for parents to be effectively integrated into the students' education at home. Participants specified that more communication is needed between home and school. I recommend collaboration between administrators, teachers, and parents to discuss areas of need and better transparency between school and home efforts. The collaboration should occur multiple times during the school year focusing on students' science outcomes.

Participants also mentioned that parents were not able to assist students because they did not have the necessary skills or the knowledge to help their children with science-related tasks. The results from the study showed that administrators and science teachers agreed on the need for additional support for parents to be more involved at home. My recommendation would be to design and implement programs for parents to determine the support that is the most successful in improving home-based parental involvement in science education at the middle school level. Training opportunities can be provided for parents on a long-term basis to be more effective in supporting students at home. National Parenting Education Network (n.d.) is an organization that supports training parents through workshops, online platforms, videos, and books. This initiative can also include professional development opportunities for administrators and teachers to expand their skills on parental involvement strategies.

Participants discussed low levels of communication between parents and students regarding science education. The results showed that there is a need for enabling parental involvement through initiatives that improve skills for home-based learning as well as parent-child communication (Hamlin & Flessa, 2018). Home-school collaboration, as well as parent training, can provide opportunities for quality interactions between parents and students. The parent training can strengthen parent-student relationships by providing relevant, effective education and support (National Parenting Education Network, n.d.).

Future research is warranted to explore parents' and students' perceptions of home-based parental involvement behaviors regarding middle school students' academic outcomes in science education. Doing so would allow for a more comprehensive understanding of home-based parental involvement from all stakeholders. An additional recommendation would be to explore administrators' and science teachers' perceptions of home-based parental involvement behaviors regarding middle school students' science outcomes in other school districts in the same state. Findings from other school districts in the same state could be combined with findings of this study to improve transferability.

Implications

The purpose of this basic qualitative study was to explore the administrators' and science teachers' perceptions of home-based parental involvement behaviors regarding middle school students' academic outcomes in science education. The research revealed that administrators and science teachers recognized the need for improved collaboration between home and school, the need for additional parental support as well as improved parent-student interactions. Administrators and science teachers varied on the type of

support that parents needed to improve home-based parental involvement behaviors to enhance students' science outcomes. Implications for social change based upon this study could be support programs for parents and improved professional development for administrators and science teachers to enhance home-based parental involvement behaviors for the betterment of middle school students' science outcomes.

Conclusion

Home-based parental involvement behaviors are a key factor in student achievement regardless of grade level or socioeconomic status (Deslandes & Barma, 2016; Epstein et al., 2018). The results of this basic qualitative study revealed the intricacies of home-based parental involvement and students' academic outcomes in science education. Based on the results, the reality is that parents need support and training on how to play an effective role in adolescents' educational lives. Administrators and teachers also need innovative strategies to weave parental involvement in the work that they do. The study demonstrated that administrators and science teachers value the importance of parental involvement, and some initiatives are in place. Effective collaborative partnerships between administrators, teachers, and parents will enhance positive school experience and ensure students' overall success. Meaningful and consistent integration of parents will lead to positive parent-student interactions, which improves students' academic outcomes, empowering life-long learners.

References

Abuya, B. A., Wekulo, P., & Muhia, N. (2018). Support to children's education in the urban slums of Nairobi: Community and parents' perceptions with an expanded phase of an education intervention program. *Qualitative Research in Education*, *7*(2), 118-143. doi:10.17583/qre.2018.3240

Al-Alwan, A. F. (2014). Modeling the relations among parental involvement, school engagement, and academic performance of high school students. *International Education Studies*, *7*(4), 47-56. doi:10.5539/iesv7n4p47

Aligbe, E. (2014). *Parental involvement behaviors and mathematics achievement among suburban high school students* (Doctoral dissertation). Walden University, MN.

Ansari, A., & Gershoff, E. (2016). Parent involvement in head start and children's development: Indirect effects through parenting. *Journal of Marriage and Family*, *78*(2), 562-579. doi:10.1111/jomf.12266

Baker, T. L., Wise, J., Kelley, G., & Skiba, R. J. (2016). Identifying barriers: Creating solutions to improve family engagement. *School Community Journal*, *26*(2), 161-184. Retrieved from http://www.schoolcommunitynetwork.org/SCJ.aspx

Bartz, D. E., Karnes, C., & Rice, P. (2018). Enhancing children's school success through parent involvement/family engagement programs. *Journal of Education and Social Policy*, *5*(1), 28-34. Retrieved from http://www.jespnet.com/

Bashir, L., & Bashir, H. (2016). Educational aspiration of secondary school students in relation to parental encouragement. *Indian Journal of Positive Psychology*, *7*(1), 141. Retrieved from http://www.i-scholar.in/index.php/ijpp

Benner, A. D., Boyle, A. E., & Sadler, S. (2016). Parental involvement and adolescents' educational success: The roles of prior achievement and socioeconomic status. *Journal of Youth and Adolescence*, *45*(6), 1053-1064. doi:10.1007/s10964-016-0431-4

Bhargava, S., & Witherspoon, D. P. (2015). Parental involvement across middle and high school: Exploring contributions of individual and neighborhood characteristics. *Journal of Youth and Adolescence*, *44*(9), 1702-1719. doi:10.1007/s10964-015-0334-9

Bianchini, J. A. (2017). Equity in Science Education. *Science Education*, (pp. 455-464). doi:10.1007/978-94-6300-749-8_33

Bierman, K. L., Heinrichs, B. S., Welsh, J. A., Nix, R. L., & Gest, S. D. (2017). Enriching preschool classrooms and home visits with evidence-based programming: sustained benefits for low-income children. *Journal of Child Psychology and Psychiatry*, *58*(2), 129-137. doi:10.1111/jcpp.12618

Blotnicky, K. A., Franz-Odendaal, T., French, F., & Joy, P. (2018). A study of the correlation between STEM career knowledge, mathematics self-efficacy, career interests, and career activities on the likelihood of pursuing a STEM career among middle school students. *International Journal of STEM education*, *5*(1), 22. doi:10.1186/s40594-018-0118-3

Boonk, L., Gijselaers, H. J., Ritzen, H., & Brand-Gruwel, S. (2018). A review of the relationship between parental involvement indicators and academic achievement. *Educational Research Review*, *24*, 10-30. doi:10.1016/j.edurev.2018.02.001

Brock, S., & Edmunds, A. L. (2010). Parental involvement: Barriers and opportunities. *Journal of Educational Administration and Foundations*, *21*(1), 48.

Brotman, L. M., Barajas-Gonzalez, R. G., Dawson-McClure, S., & Calzada, E. J. (2018). Schooling and Academic Attainment. *Handbook of Parenting and Child Development Across the Lifespan*, (pp. 263-287). doi:10.1007/978-3-319-94598-9_12

Castro, M., Expósito-Casas, E., López-Martín, E., Lizasoain, L., Navarro-Asencio, E., & Gaviria, J. L. (2015). Parental involvement on student academic achievement: A meta-analysis. *Educational research review*, *14*, 33-46. doi:10.1016/j.edurev.2015.01.002

Cohen, D., & Crabtree, B. (2006). Qualitative research guidelines project. Retrieved from http://www.qualres.org/

Creswell, J. W. (2014). *Research design: Qualitative, quantitative, and mixed methods approaches*. Thousand Oaks, CA: Sage.

Creswell, J. W., & Creswell, J. D. (2017). *Research design: Qualitative, quantitative, and mixed methods approaches*. Thousand Oaks, CA: Sage.

Deslandes, R., & Barma, S. (2016). Revisiting the Challenges Linked to Parenting and Home-School Relationships at the High School Level. *Canadian Journal of Education*, *39*(4), n4. Retrieved from https://cje-rce.ca

Deslandes, R., Barma, S., & Morin, L. (2015). Understanding Complex Relationships between Teachers and Parents. *International Journal About Parents in Education*, *9*(1). Retrieved from http://www.ernape.net/ejournal/index.php/IJPE

Dotterer, A. M., & Wehrspann, E. (2016). Parent involvement and academic outcomes among urban adolescents: examining the role of school engagement. *Educational Psychology, 36*(4), 812-830. doi:10.1080/01443410.2015.1099617

Duppong Hurley, K., Lambert, M. C., January, S. A. A., & Huscroft D'Angelo, J. (2017). Confirmatory factor analyses comparing parental involvement frameworks with secondary students. *Psychology in the Schools*, *54*(9), 947-964. doi:10.1002/pits.22039

Eccles, J. S., & Harold, R. D. (1996). Family involvement in children's and adolescents' schooling. In A. Booth & J. F. Dun (Eds.), *Family-school links: How do they affect educational outcomes?* (pp. 3-34). Mahwah, NJ: Lawrence Erlbaum Associates.

Edwards, P. (2016). *New ways to engage parents: Strategies and tools for teachers and leaders, K–12*. New York, NY: Teachers College Press.

Eilks, I., & Hofstein, A. (2017). Curriculum development in science education. In *Science Education* (pp. 167-181). Brill Sense. doi:10.1007/978-94-6300-749-8_13

El Nokali, N. E., Bachman, H. J., & Votruba-Drzal, E. (2010). Parent involvement and children's academic and social development in elementary school. *Child Development, 81*(3), 988-1005. doi:10.1111/j.1467-8624.2010. 01447.x

Epstein, J. L. (2008). Improving family and community involvement in secondary schools. *The Education Digest, 73*(6), 9-12. doi:1417848271.

Epstein, J. L. (2011). *School, family, and community partnerships: Preparing educators and improving schools* (2nd ed.). Boulder, CO: Westview Press.

Epstein, J. L., & Connors, L. J. (1995). School and family partnerships in the middle grades. In Rutherford, B. (1995), *Creating school/family partnerships* (pp. 137-166). Columbus, OH: National Middle School Association.

Epstein, J. L., Sanders, M. G., Sheldon, S. B., Simon, B. S., Salinas, K. C., Jansorn, N. R., ... & Hutchins, D. J. (2018). *School, family, and community partnerships: Your handbook for action*. Thousand Oaks, CA: Corwin Press.

Epstein, J. L., & Sheldon, S. B. (2006). Moving forward: Ideas for research on school, family, and community partnerships. In C. F. Conrad & R. C. Serlin (Eds.), *SAGE handbook for research in education: Engaging ideas and enriching inquiry* (pp.117-138). doi:10.4135/9781412976039.n7

Erdener, M. A., & Knoeppel, R. C. (2018). Parents' perceptions of their involvement in schooling. *International Journal of Research in Education and Science*, *4*(1), 1-13. doi:10.21890/ijres.369197

Fishman, C., & Nickerson, A. (2015). Motivations for involvement: A preliminary investigation of parents of students with disabilities. *Journal of Child & Family Studies*, *24*(2), 523-535. doi:10.1007/s10826-013-9865-4

Goodwin, B. (2017). The power of parental expectations. *Educational Leadership, 75*(1), 80-81. doi:10.4324/9781439840283-10

Gottfried, A. E., Preston, K. S. J., Gottfried, A. W., Oliver, P. H., Delany, D. E., & Ibrahim, S. M. (2016). Pathways from parental stimulation of children's curiosity to high school science course accomplishments and science career interest and skill. *International Journal of Science Education*, *38*(12), 1972-1995.

doi:10.1080/09500693.2016.1220690

Grant, K. B., & Ray, J. A. (Eds.). (2018). *Home, school, and community collaboration: Culturally responsive family involvement*. Thousand Oaks, CA: Sage.

Green, C. L., Walker, J. M., Hoover-Dempsey, K. V., & Sandler, H. M. (2007). Parents' motivations for involvement in children's education: An empirical test of a theoretical model of parental involvement. *Journal of Educational Psychology*, *99*(3), 532. doi:10.1037/0022- 0663.99.3.532

Gubbins, V., & Otero, G. (2016). Effect of the parental involvement style perceived by elementary school students at home on Language and Mathematics performance in Chilean schools. *Educational Studies*, *42*(2), 121-136. doi:10.1080/03055698.2016.1148586

Guyer, A. E., Silk, J. S., & Nelson, E. E. (2016). The neurobiology of the emotional adolescent: From the inside out. *Neuroscience & Biobehavioral Reviews, 70,* 74-85. doi:10.1016/j.neubiorev.2016.07.037

Hamlin, D., & Flessa, J. (2016). Parental involvement initiatives: An analysis. *Educational Policy*, 0895904816673739. doi:10.1177/0895904816673739

Hamlin, D., & Flessa, J. (2018). Parental involvement initiatives: An analysis. Educational Policy, 32(5), 697-727. doi:10.1177/0895904816673739

Heaton, R. R. (2016). Parental Involvement: Perceptions and Participation at Critical Moments Throughout the Middle School Transition. Electronic Theses and Dissertations. Paper 3002. https://dc.etsu.edu/etd/3002

Hemmerechts, K., Agirdag, O., & Kavadias, D. (2017). The relationship between parental

literacy involvement, socio-economic status and reading literacy. *Educational Review*, *69*(1), 85-101. doi:10.1080/00131911.2016.1164667

Hill, N. E., & Tyson, D. F. (2009). Parental involvement in middle school: a meta-analytic assessment of the strategies that promote achievement. *Developmental psychology*, *45*(3), 740. doi:10.1037/a0015362

Hill, N. E., Witherspoon, D. P., & Bartz, D. (2018). Parental involvement in education during middle school: Perspectives of ethnically diverse parents, teachers, and students. *The Journal of Educational Research*, *111*(1), 12-27. doi:10.1080/00220671.2016.1190910

Hoover-Dempsey, K. V., Battiato, A. C., Walker, J. M. T., Reed, R. P., DeJong, J. M., & Jones, K. P. (2001). Parental Involvement in Homework. *Educational Psychologist*, *36*(3), 195-209. doi:10.1207/s15326985ep3603_5

Hoover-Dempsey, K. V., & Sandler, H. M. (1995). Parental involvement in children's education: Why does it make a difference? *Teachers college record*, *97*(2), 310–331. Retrieved from http://psycnet.apa.org/home

Hoover-Dempsey, K. V., & Sandler, H. M. (2005). *Final Performance Report for Office of Educational Research and Improvement* (OERI) Grant # R305T010673: The Social context of parental involvement: A path to enhanced achievement.

Hossain, M. (2012). How to motivate US students to pursue STEM (science, technology, engineering and mathematics) careers. *Online Submission*. US-China Education Review A 4, 442-451. Retrieved from http://www.davidpublisher.org/Home/Journal/UCER-A

Houghton, C., Casey, D., Shaw, D., & Murphy, K. (2013). Rigour in qualitative case-study research. *Nurse Researcher*, *20*(4). doi:10.7748/nr2013.03.20.4.12. e326

Huat See, B., & Gorard, S. (2015). The role of parents in young people's education—a critical review of the causal evidence. *Oxford Review of Education, 41*(3), 346-366. doi:10.1080/03054985.2015.1031648

Hyde, J. S., Canning, E. A., Rozek, C. S., Clarke, E., Hulleman, C. S., & Harackiewicz, J. M. (2017). The role of mothers' communication in promoting motivation for math and science course-taking in high school. *Journal of Research on Adolescence*, *27*(1), 49-64. doi:10.1111/jora.12253

Inoa, R. (2017). Parental involvement among middle-income Latino parents living in a middle-class community. *Hispanic Journal of Behavioral Sciences*, *39*(3), 316-335. doi:10.1177/0739986317714200

Jeynes, W. H. (2007). The relationship between parental involvement and urban secondary school student academic achievement: A meta-analysis. *Urban education*, *42*(1), 82-110. doi:10.1177/0042085906293818

Jeynes, W. H. (2017). A meta-analysis: The relationship between parental involvement and Latino student outcomes. *Education and Urban Society*, *49*(1), 4-28. doi:10.1177/0013124516630596

Karaçöp, A. A., Akıllı, M., & Aksu, F. F. (2016). The Parent Involvement in Students' Home-Based Science Learning Activities Scale (PI-SHBScienceLAS): Validity and Reliability Studies. *International Online Journal of Educational Sciences*, *8*(1), 57-77. doi:10.15345/iojes.2016.01.006

Karibayeva, A., & Bogar, Y. (2014). To what Extent does Parents' Involvement in Middle School Influence Children's Educational Progress? *Procedia-Social and Behavioral Sciences, 152*, 529-533. doi:10.1016/j.sbspro.2014.09.222

Latunde, Y., & Clark-Louque, A. (2016). Untapped resources: Black parent engagement that contributes to learning. *The Journal of Negro Education*, *85*(1), 72-81. doi:10.7709/jnegroeducation.85.1.0072

Laws & Guidance. (n.d.). Retrieved from https://www2.ed.gov/policy/landing.jhtml?src=pn

Leithwood, K., & Patrician, P. (2015). Changing the educational culture of the home to increase student success at school. Societies, 5(3), 664-685. doi:10.3390/soc5030664

Leyendecker, B., Cabrera, N., Lembcke, H., Willard, J., Kohl, K., & Spiegler, O. (2018). Parenting in a New Land. *European Psychologist, 23*, 57-71. doi:10.1027/1016-9040/a000316

Liou, P. Y., Wang, C. L., & Lin, J. J. (2019). Pathways of parental involvement through students' motivational beliefs to science achievement. *Educational Psychology*, *39*(7), 960-980. doi:10.1080/01443410.2019.1617410

Liu, Y. (2019). Parent Involvement in Children's Mathematics Achievement. (master's thesis). University of Alberta, Canada.

Lloyd-Smith, L., & Baron, M. (2010). Beyond Conferences: Attitudes of High School Administrators toward Parental Involvement in One Small Midwestern State. *School Community Journal*, *20*(2), 23-44. Retrieved from

http://www.adi.org/journal

Marion, R. (2007). CDIP Community Commons. Retrieved April 22, 2020, from http://teachingcommons.cdl.edu/cdip/facultyresearch/Qualitativeresearch.html

Marshall, I. A., & Jackman, G. A. (2015). Parental Involvement, Student Active Engagement and the" Secondary Slump" Phenomenon--Evidence from a Three-Year Study in a Barbadian Secondary School. *International Education Studies*, *8*(7), 84-96. doi:10.5539/ies.v8n7p84

Martinez, P., & Wizer-Vecchi, J. (2016). Fostering Family Engagement through Shared Leadership in the District, Schools, and Community. *Voices in Urban Education*, *44*, 6-13. Retrieved from http://vue.annenberginstitute.org/

Merriam, S., & Tisdell, E. J. (2016). *Qualitative research: A guide to design and implementation*. San Francisco, CA: Jossey-Bass

Miles, M. B., Huberman, A. M., & Saldaña, J. (2013). *Qualitative data analysis: A methods sourcebook* (3rd ed.). Los Angeles, CA: Sage.

Morgan, P. L., Farkas, G., Hillemeier, M. M., & Maczuga, S. (2016). Science achievement gaps begin very early, persist, and are largely explained by modifiable factors. *Educational Researcher*, *45*(1), 18-35. doi:10.3102/0013189X16633182

Murray, K. W., Finigan-Carr, N., Jones, V., Copeland-Linder, N., Haynie, D. L., & Cheng, T. L. (2014). Barriers and Facilitators to School-Based Parent Involvement for Parents of Urban Public Middle School Students. *SAGE Open*, *4*(4), 215824401455803. doi:10.1177/2158244014558030

Musabelliu, G., Wiener, J., & Rogers, M. (2018). Parental involvement in the learning of adolescents with and without ADHD. *School Psychology International, 39*(3), 234-250. doi:10.1177/0143034318766374

National Parenting Education Network. (n.d.). *National Parenting Education Network.* Retrieved from https://npen.org/

The National Science Teachers Association. (2014). Parent Q & A. Retrieved from https://ngss.nsta.org/parent-q-and-a.aspx

Oates, T. (2017). Building effective parental involvement in middle schools: The parents' perceptions (Doctoral dissertation). Retrieved from http://commons.cuportland.edu/cgi/viewcontent.cgi?article=1070&context=edudissertations

Organization for Economic Co-operation and Development. (2017). Public spending on education (indicator). Retrieved from https://data.oecd.org/eduresource/education-spending.htm.

Oswald, D., Zaidi, H., Cheatham, S., & Diggs Brody, K. (2018). Correlates of Parental Involvement in Students' Learning: Examination of a National Data Set. *Journal of Child and Family Studies, 27*(1), *316-323.* doi:10.1007/s10826-017-0876-4

Park, S., & Holloway, S. D. (2017). The effects of school-based parental involvement on academic achievement at the child and elementary school level: A longitudinal study. *The Journal of Educational Research, 110*(1), 1-16. doi:10.1080/00220671.2015.1016600

Patton, M. Q. (2015). Qualitative research and methods: Integrating theory and practice.

Thousand Oaks, CA: Sage.

Perkins, D. F., Syvertsen, A. K., Mincemoyer, C., Chilenski, S. M., Olson, J. R., Berrena, E., & Spoth, R. (2016). Thriving in School. *Youth & Society*, *48*(6), 739-762. doi:10.1177/0044118x13512858

Pinquart, M. (2016). Associations of Parenting Styles and Dimensions with Academic Achievement in Children and Adolescents: A Meta-analysis. *Educational Psychology Review*, *28*(3), 475-493. doi:10.1007/s10648-015-9338-y

Puccioni, J. (2018). Parental beliefs about school readiness, home and school-based involvement, and children's academic achievement. *Journal of Research in Childhood Education*, *32*(4), 435-454. doi:10.1080/02568543.2018.1494065

Quay, L. (2018). Research in action. *Education Week*, 37(16), 22-23. Retrieved from https://www.edweek.org/ew/index.html

Ravitch, S. M., & Carl, N. M. (2019). *Qualitative research: Bridging the conceptual, theoretical, and methodological*. Los Angeles, CA: Sage.

Reeve, E. M. (2015). STEM Thinking! *Technology and Engineering Teacher*, *75*(4), 8-16. Retrieved from http://www.iteaconnect.org

Robinson, G. (2016). A survey of parental rights and responsibilities in school choice laws. *American Enterprises Institute Paper & Studies*, 1. Retrieved from https://www.questia.com/library/p440089/aei-paper-studies

Ross, T. (2016). The differential effects of parental involvement on high school completion and postsecondary attendance. *Education Policy Analysis Archives/Archivos Analíticos de Políticas Educativas*, *24*, 1-38.

doi:10.14507/epaa.24.2030

Ryan-Nichols, K., & Will, C. (2009). Rigour in qualitative research: mechanisms for control. *Nurse Researcher, 16*(3), 70-85. doi:10.774/nr2009.04.16.3.70.c6947

Saldaña, J. (2016). *The coding manual for qualitative researchers*. Los Angeles, CA: Sage.

Sebastian, J., Moon, J. M., & Cunningham, M. (2017). The relationship of school-based parental involvement with student achievement: A comparison of principal and parent survey reports from PISA 2012. *Educational Studies*, *43*(2), 123-146. doi:10.1080/03055698.2016.1248900

Sheldon, S. B., & Epstein, J. L. (2005). Involvement counts: Family and community partnerships and mathematics achievement. *The Journal of Educational Research, 98*(4), 196-207. doi:10.3200/JOER.98.4.196-207

Silverman, D. (2016). *Qualitative research*. Thousand Oaks, CA: Sage.

Simpkins, S., Estrella, G., Gaskin, E., & Kloberdanz, E. (2018). Latino parents' science beliefs and support of high school students' motivational beliefs: Do the relations vary across gender and familism values? *Social Psychology of Education, 21*(5), 1203-1224. doi:10.1007/s11218-018-9459-5

Skinner, B. F. (1989). The origins of cognitive thought. *American Psychologist, 44,* 13-18. doi:10.1037/0003-066X.44.1.13

State Department of Education. (2015, November 4). *Next Generation Science Standards*. Retrieved from http://www.sde.ct.gov/sde/cwp/view.asp?a=2618&Q=320890

State Department of Education. (2016). *CMT/CAPT science assessment data*. Retrieved

from http://www.sde.ct.gov/sde/cwp/view.asp?a=2748&q=335456

State Department of Education. (2019). Retrieved on December 14, 2019, from http://edsight.ct.gov/SASPortal/main.do

Steinberg, L. (2014). *Adolescence* (10th ed.). New York, NY: McGraw-Hill.

Strickland, S. C. (2015). The Effects of Parental Motivations on Home-Based and School-Based Parental Involvement. (Doctoral dissertation). Walden University, MN.

Tang, S. (2015). Social capital and determinants of immigrant family educational involvement. *The Journal of educational research*, *108*(1), 22-34. doi:10.1080/00220671.2013.833076

Titiz, H., & Tokel, A. (2015). Parent's expectations from teachers and school administrators regarding school-family cooperation development. *International Journal on New Trends in Education and Their Implications*, *6*(2), 172-187. Retrieved from http://www.ijonte.org/

Toren, N. K., & Seginer, R. (2015). Classroom climate, parental educational involvement, and student school functioning in early adolescence: A longitudinal study. *Social Psychology of Education: An International Journal*, *18*(4), 811-827. doi:10.1007/s11218-015-9316-8

Torre, D., & Murphy, J. (2016). Communities of parental engagement: new foundations for school leaders' work. *International Journal of Leadership in Education*, *19*(2), 203-223. doi:10.1080/13603124.2014.958200

Ule, M., Zivoder, A., & du Bois-Reymond, M. (2015). "Simply the best for my children":

Patterns of parental involvement in education. *International Journal of Qualitative Studies in Education, 28,*329-348. doi:10.1080/09518398.2014.987852

United States Code (2004). §7801 (39).

U.S. Department of Education. (2010). Career and college-ready standards and assessments. Retrieved from https://www2.ed.gov/policy/elsec/leg/blueprint/faq/college-career.pdf

Van Petegem, S., Soenens, B., Vansteenkiste, M., & Beyers, W. (2015). Rebels with a cause? Adolescent defiance from the perspective of reactance theory and self-determination theory. *Child Development, 86*(3), 903-918. doi:10.1111/cdev.12355

Varghese, C., & Wachen, J. (2016). The determinants of father involvement and connections to children's literacy and language outcomes: Review of the literature. *Marriage & Family Review*, *52*(4), 331-359. doi:10.1080/01494929.2015.1099587

Walker, J. M., Hoover-Dempsey, K. V., Whetsel, D. R., & Green, C. L. (2004). Parental involvement in homework: A review of current research and its implications for teachers, after school program staff, and parent leaders. *Harvard Family Research Project, Cambridge, MA*. Retrieved from www.hfrp.org

Wang, M., & Sheikh-Khalil, S. (2014). Does Parental Involvement Matter for Student Achievement and Mental Health in High School? *Child Development, 85*(2), 610-625. doi:10.1111/cdev.12153

Wang, Y., Deng, C., & Yang, X. (2016). Family economic status and parental involvement: Influences of parental expectation and perceived barriers. *School Psychology International*, *37*(5), 536-553. doi:10.1177/0143034316667646

Warnasuriya, M. (2018). *Parents Matter: How Parent Involvement Impacts Student Achievement*. Xlibris, USA.

Wassell, B. A., Hawrylak, M. F., & Scantlebury, K. (2017). Barriers, Resources, Frustrations, and Empathy: Teachers' Expectations for Family Involvement for Latino/a ELL Students in Urban STEM Classrooms. *Urban Education*, *52*(10), 1233-1254. doi:10.1177/0042085915602539

Watkins, C. S., & Howard, M. O. (2015). Educational success among elementary school children from low socioeconomic status families: A systematic review of research assessing parenting factors.*Journal of Children and Poverty*,*21*(1), 17-46. doi:10.1080/10796126.2015.1031728

Wilder, S. (2014). Effects of parental involvement on academic achievement: a meta-synthesis. *Educational Review*, *66*(3), 377-397. doi:10.1080/00131911.2013.780009

Xu, J., Du, J., Wu, S., Ripple, H., & Cosgriff, A. (2018). Reciprocal effects among parental homework support, effort, and achievement? An empirical investigation. *Frontiers in Psychology*, *9*, 2334. doi:10.3389/fpsyg.2018.02334

Yin, R. K. (2015). *Qualitative research from start to finish*. New York, NY: Guilford publications.

Yotyodying, S. (2012). The quality of home-based parental involvement: antecedents and

consequences in German and Thai families. Doctoral dissertation. Germany: Bielefeld University.

Yotyodying, S., & Wild, E. (2016). Predictors of the quantity and different qualities of home-based parental involvement: Evidence from parents of children with learning disabilities. *Learning and Individual Differences, 49,* 74-84. doi:10.1016/j.lindif.2016.05.003

You, S., Lim, S. A., No, U., & Dang, M. (2016). Multidimensional aspects of parental involvement in Korean adolescents' schooling: a mediating role of general and domain-specific self-efficacy. *Educational Psychology*, *36*(5), 916-934. doi:10.1080/01443410.2015.1025705

Zolkoski, S. M., Sayman, D. M., & Lewis-Chiu, C. G. (2018). Considerations in Promoting Parent and Family Involvement. *Diversity, Social Justice, and the Educational Leader*, *2*(2), 1. Retrieved from https://scholarworks.uttyler.edu/dsjel/vol2/iss2/1

Appendix A: NIH Certificate of Completion

Certificate of Completion

The National Institutes of Health (NIH) Office of Extramural Research certifies that **Staicy Anthony** successfully completed the NIH Web-based training course "Protecting Human Research Participants".

Date of completion: 04/23/2017.

Certification Number: 2372273.

Appendix B: Interview Protocol for Administrators

I. Greetings

II. Review of Consent Form

III. Participant Questions

IV. Opening Question (to establish rapport)

V. Interview Questions

1. What does home-based parental involvement mean to you as an administrator? (General)
    a. Can you contribute more information?
2. In your opinion, how often do you believe students ask for help at home with science-related assignments? (Modeling)
    a. Can you provide specific examples?
3. How have you reached out to the parents to promote home-based parental involvement? (Encouragement)
    a. Can you provide specific examples?
4. How have you assisted parents with their child's academics, specifically science? (Instruction)
    a. Can you give specific examples?
5. How can administrators, teachers, and parents work together to assist students at home? (Reinforcement)
    a. Give examples.

6. What type of strategies can the school offer to assist parents to encourage their children to succeed in science? (Encouragement)
    a. Give examples.
7. In your opinion, how can the school work more closely with parents to help support their child's science outcomes? (Modeling)
    a. Give examples.

VI. Close of Interview

1. Thank You
2. Participant Questions

VII. End interview

Appendix C: Interview Protocol for Science Teachers

I. Greetings

II. Review of Consent Form

III. Participant Questions

IV. Opening Question (to establish rapport)

V. Interview Questions

1. What does home-based parental involvement mean to you as a science teacher? (General)
    a. Can you contribute more information?
2. In your opinion, how often do you believe students ask for help at home with science-related assignments? (Modeling)
    a. Can you provide specific examples?
3. How have you reached out to the parents to promote home-based parental involvement? (Encouragement)
    a. Can you provide specific examples?
4. How have you assisted parents with their child's academics, specifically science? (Instruction)
    a. Can you give specific examples?
5. How can administrators, teachers, and parents work together to assist students at home? (Reinforcement)
    a. Give examples.

6. What type of strategies can the school offer to assist parents to encourage their children to succeed in science? (Encouragement)
    a. Give examples.

VI. Close of Interview

1. Thank You
2. Participant Questions

VII. End interview