MIDDLE SCHOOL LATINX STUDENTS AND PARENT INVOLVEMENT: A LOOK AT MATHEMATICS ACHIEVEMENT

By

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As members of the Dissertation Committee, we certify that we have read the dissertation prepared by ***Heather Pletnick***, titled ***Middle School Latinx Students and Parent Involvement: A Look at Mathematics Achievement*** and recommend that it be accepted as fulfilling the dissertation requirement for the Degree of Educational Doctorate.

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Table of Contents

List of Tables

Abstract

Regardless of the racial or ethnic background of the parents, there are positive benefits of parental involvement on students' academic outcomes. Involving parents from varying backgrounds across all grade levels is a challenge for K-12 educators. Some of the barriers that exist for consistent parent involvement, especially with minority students, are life context, class, gender, student learning difficulties, differing agendas, language barriers, and societal, historical and economic changes. The educational model in the United States was originally developed for majority middle-class families and their children, rather than for minority parents and their children. Currently, the demographics of our schools are shifting. It is estimated that 1 of every 4 students, including 40% of the total school population in nine states, is Latinx. Despite this growth, Latinx students are still underperforming academically when compared to their white and Asian classmates, especially in math. A literature review shows that there is a dearth of parent involvement literature at the secondary level, especially when minority students are concerned. Recent parent involvement literature focuses on the shift of how parent involvement is both defined and implemented. The emphasis has shifted from how parents are involved at school to what they are doing in the home. More specifically, recent literature focuses on subtle forms of parent involvement like setting high expectations, continual open communication, and creating a stimulating environment (Jeynes 2010).

This qualitative case study sought to answer three research questions: 1) How do middle school administrators encourage and support home-based Latinx parent involvement in advanced mathematics? 2) How do middle school math teachers encourage and support home-based Latinx parent involvement in advanced mathematics?

3) How do Latinx family members facilitate support for advanced mathematics? The study was conducted at a middle school in a suburban area of a southwestern state in the United States with approximately 800 students (approximately 45% minority) in grades 7th and 8th. Data were gathered from multiple sources, including face-to-face interviews, online and paper documents, and email communications.

Findings revealed that the proportion of Latinx students in advanced math (8%) is not the same as the proportion of Latinx students (approximately 40%) in this predominately middle-class school. Findings also revealed that the parents nominated by math teachers for this study were mostly assimilated, middle-class educated parents.

From the interviews, one strong theme that emerged were that administrators, teachers, and parents collectively are setting high expectations both at school and in the home for each other. A second theme is that there exist open communication styles in the home, and responsive communication at school, that included a weekly general email to parents from administration. Teachers communicated less frequently with parents but did so on an as needed basis when curriculum or student behavior warranted it. Finally, a third theme revealed that administrators, teachers, and parents created an environment conducive to learning and collaboration in a very traditional sense without regard to the parent involvement or Latinx literature.

Some unexpected findings came out of the study. There is colorblindness at every level of the district. All participants refer to students in general terms, void of any ethnic considerations. In addition, when teacher participants were prompted for involved Latinx parents, two involved white parents were identified. Finally, the only Latinx administrator in the district (A2), had not heard of the term Latinx. The other unexpected

finding was that the district and the school had plans to improve math but have ignored the research of family involvement and engaging Latinx students.

This study is supported by the math work of Sheldon & Epstein (2005) that focuses on the need for stronger curriculum and instruction as well as student readiness and background. It is partially supported by student attitudes about math and support for math in home environments. In addition, this study is supported by the parent involvement literature of Jeynes that focuses on the subtle types of parent involvement such as setting high expectations, open communication, and providing an environment in the home that is conducive to learning (2010). Although all parents report subtle at home activities that mirrored findings by both Sheldon & Epstein (2005) and Jeynes (2010), finding must be considered in light of the fact that all were assimilated, middle-class educated parents.

One practice recommendation includes teaching parents about subtle parent involvement strategies like open communication and setting high expectations. This can be done in the form of written or oral communication at the beginning of the school year or by offering parent classes throughout the school year. Another practice recommendation includes training teachers as well on how to engage with parents about the subtle forms of parent involvement. This can be done in college teacher preparation classes or during summer professional development or site administration modeling of how to frame conversations and communicate with parents via their syllabus or in person at back to school night for parents. Finally, it will be necessary to develop a parent curriculum. This curriculum would not only support parents and their navigation of the school system, but also for administrators and teachers and how they can best

communicate and involve the parents in their child's education. Further, tangible math lessons that go home for parents and their children to work out together should be created.

Two additional studies may add to the literature base. A study of non-middle-class parents. The first study will provide an opportunity to look at their non-middle-class parenting and communication styles and how they navigate the school system. It can focus on how educators provide parents with opportunities to stay more connected to school and eventually increase the number of Latinx students in advanced math classes.

Second, a study to identify students at an earlier age before math placements are determined to increase the number of Latinx students in advanced math classes. By supporting subtle parent involvement in elementary school, parents can support math development, develop relationships with educators, and encourage participation in advanced level math classes.

Chapter 1. Introduction

The Latinx student population is the fastest growing student group in our public-school system, nearly quadrupling in numbers over the last two decades (U.S. Census, 2010). It is estimated that about one of every four students (25%), including 40% of the total school population in nine states (Marrero, F.A., 2016) of our public schools are Latinx. Additionally, as of 2013, more than 90% of these students were born in the United States (Layton, 2014). The data indicates that some of the barriers that have existed for Latinx students, including language barriers and cultural assimilation are slowly disappearing. Despite this growth, which includes about 17.5 million Latinx students in our school system, Latinx students are still underperforming academically when compared to their White and Asian classmates. This is especially true for math (Layton, 2014).

Reasons for the inequity include barriers that still exist like the uncertainty of the American public-school system, less exposure to a rigorous curriculum, and lower expectations for minority students. Furthermore, there still includes a difference in defining what attentive or supportive means for parents of various groups (Lopez & Fry, 2014; Pew Research Center, 2011). These reasons or explanations aside, Latinx students continue to be underrepresented in advanced math classes. According to the Department of Education (2003b) report, *Status and Trends in Hispanic Education*, only 26% of Latinx students are in advanced math classes, with 59% of Latinxs only completing middle level math classes (Layton, 2014). This equates to just 12 of every 1,000 Latinx students taking AP calculus in high school. Despite these weak figures, there is some promising data showing a significant jump in math scores from 2003 to 2013 for Latinx

students. Math scores increased by 13 points at the 8th grade level, thereby moving Latinx students at the 8th grade level by one full grade level (Layton, 2014).

At the school level, this growth could be attributed to reform instruction that is aligning standards, changing the way teachers are preparing to work with students at the secondary level in math, and increasing the relatability of math to include more instruction about practical math, thus providing students with math literacy for the workplace (Holloway, 2004). In addition, teachers are utilizing diverse and flexible testing, engaging in immediate remediation, varying their instructional styles, and setting high expectations for all students, regardless of their background or ability level. Perhaps the biggest change is the increase of the schools' understanding of the importance of parent involvement, which has evolved in the last decade.

Federal and state policy has shined the spotlight on developing better programs for parent involvement and increasing numbers of schools are looking at parents as partners and encouraging this partnership (NCLB, 2002). The literature affirms that parent involvement increases academic achievement. Traditionally, parent involvement has centered around parents coming to school and helping in the classroom, getting involved on campus, or helping their child with homework after school (Epstein, 1995). This model, or way of thinking about parent involvement, centers around two models: an external model and an internal model. The external model focuses on the overlapping spheres of influence in which children learn and grow (the family, the school, and the community). The internal model of the interaction shows "where and how complex and essential interpersonal relations and patterns of influence occur between individuals at home, at school, and in the community" (Epstein, p. 701). Epstein's framework includes

six types of involvement within these spheres of influence: type 1– parenting, type 2–communicating, type 3–volunteering, type 4–learning at home, type 5–decision making, and type 6–collaborating with community. As Epstein narrates, not too long ago, parent involvement was a more comprehensive and well-planned partnership between home, school, and community, showing that academics increased because of these partnerships. However, the data showed that this limited gain did not always materialize for minority student groups (Sheldon & Epstein, 2005).

Furthermore, schools lacked organizational goals and objectives for parent involvement, and most specifically, even with a national interest, there was little information on parent involvement and how Latinx families define it (Zarate, 2007). While schools report that there is a lack in Latinx family involvement, Latino parents often bypass traditional avenues normally defined by the school as 'typical' involvement (Poza, Brooks, & Valdes, 2014). Their research found that Latino parents want to understand how to help their children with their studies, but that they are more concerned about how to help their child develop holistically. Latino parents typically reach out to neighbors, community members, church authorities, and employers for support on how best to navigate the school system and help their children academically. They tend to focus on home-based activities that assist their child, not the more school-based activities like fundraising and PTA memberships (Posa et al., 2014).

More recently and congruous to the Latinx parent mindset of involvement, parent involvement has shifted to include a specific focus on parent involvement in the home (Jeynes, 2017). The notion of helping with homework is becoming an 'old idea' and in its place is a home environment that encourages learning, sets high expectations, has adults

who speak positively about school, provides academic learning opportunities, and is open to more interactive styles of homework and school work that encourages a more practical approach to subjects, especially math. To support this, Woolley, Kol, and Bowen (2009) found that, "for Latino middle school students, social variables such as parental support, parent education monitoring, friend support, friends' school behavior, and teacher support were directly or indirectly related to school outcomes, including behavior, satisfaction with school, and grades" (p. 62).

Even though there exists recent literature on how to involve Latinx families, there is still a dearth of literature on how the parents of high-achieving Latinx students in math are supporting their children and fostering this learning. The researcher presents this information to help inform teachers and school leaders about some strategies/approaches that can be used to not only increase the involvement of Latinx parents, but to continue to increase the academic math placement in higher-level math and the associated achievement of Latinx students in these classes. Most recently, Jeynes (2017) proposed the need for further research on the subtle or home-based involvement strategies of Latinx families. He postulated that this type of parent involvement is congruous with Latinx family values and parenting styles (Moll et al., 2005).

Background of the Problem

Parent involvement can be defined as "parents' interactions with schools and with their children to promote academic success" (Hill et al., 2004). Policymakers advocated for increased participation of parents with regular two-way meaningful communication involving students' academic learning and other school activities (Mapp, 2012; U.S. Department of Education, 2007). Section 1118 of the No Child Left Behind (NCLB) Act requires districts to assist all schools in developing programs to involve families in ways

that support student success (Part a, 2, B). Punitive measures of NCLB have since made educators and parents skeptical about the intention and value for many students (Gay, 2007). In addition, parent involvement has proven to be especially difficult at the middle school level in various areas including: large and complex school size, considerable number of students providing a challenge for teachers to build relationships with all students, and curricular choices that make connecting with teachers about specific subjects difficult (Hill & Tyson, 2009). Nevertheless, this policy's emphasis on parent involvement is not unreasonable because several decades' worth of education and family research supports the conclusion that parental and family involvement in school is advantageous for children of all ages (Map, Johnson, Strickland, & Meza, 2008; Mena, 2011; Pomerantz, Moorman, & Litwack, 2007). Parental involvement is positively related to achievement in middle school (Hill & Tyson, 2009).

Problem Statement

Research is needed on the specific strategies that schools and parents are engaging in to increase family involvement, especially with diverse populations. Finally, more research is needed specifically with Latinx families and the strategies that they are employing with parent involvement. This group of students continues to grow in schools, yet the data indicates that Latinx students are not performing as well as their classmates in math and their families are not involved as much in the more traditional measures of school-based involvement. This study looked at Latinx parent involvement at the middle school level when math education, subtle home-based involvement and the perceptions of the parents, teachers, and principal are considered.

Professional Significance of the Study

There are many published studies that examine parent involvement at the elementary level, but there are fewer studies that focus on parent involvement at the secondary level. Research indicates that involvement at this level is equally important, and more specifically important when academics are considered. As indicated earlier, there has been a shift in the thinking and the practice of parent involvement from a more school-based, home-school-community partnership to a more home-based model that includes subtle types of parent involvement, such as setting high expectations, speaking highly of school, and providing academic centered opportunities for children. Furthermore, for the purposes of this study, it was indicated that the Latinx family parenting style is congruous with more subtle types of parent involvement. This study contributes to the topic of secondary parent involvement at the middle school level when Latinx students and their families are concerned. It focused on academic achievement, more specifically, math.

Methodology

Parent involvement is evolving into parent engagement, and parents, schools, and communities are finding new ways to connect with each other to ensure the academic and social success of students. Published studies have indicated that parent involvement is just as important at the secondary level as it is at the elementary level. Perhaps one of the most important findings is that intentional, parent involvement, oftentimes subtle in nature when concerning academics, greatly increases student academic achievement. Current meta-analysis indicates that there is a need for more research about subtle and home-based parent involvement when minority students are involved (Jeynes, 2010).

The site for this single-site, phenomenological case study was a comprehensive middle school of about 800 students in grades 7 and 8. The school is in a suburban area of a large metropolitan area in the southwestern United States. The school serves a large geographic area of both rural and suburban students, with about 35% of those students being Latinx. In addition, it is nestled in a typical working and middle-class area with five feeder schools. The school offers a comprehensive school program, complete with high school math, high school Spanish, and electives that include technology, coding, CTE, music, and arts. It also provides every student with a Chromebook (web-based type laptop), which allows for many additional curricular support options.

The researcher interviewed school leadership, math teachers of high-level math classes (two teachers of grade level math were also interviewed), and parents of Latinx students who are succeeding in advanced or higher-level math classes. The school leaders who were interviewed included the school principal and the school associate principal who oversees the math department. Four math teachers were interviewed along with parents of successful Latinx students identified by two math teachers. The goal of the selection of the parents was to have the educators identify parents who either had a successful higher-level math student and/or who had been involved in their child's education, either visibly on campus or who had communicated a level of home involvement either through the student, the teacher, or the administrator. The following research questions were explored through individual interviews:

1. How do middle school administrators encourage and support home-based Latinx parent involvement in advanced mathematics?

2. How do middle school math teachers encourage and support home-based Latinx parent involvement in advanced mathematics?
3. How do Latinx family members facilitate support for advanced mathematics?

This study follows a qualitative approach because the research questions are best answered through qualitative inquiry. The study follows a phenomenological approach. The researcher gathered data from face-to-face interviews, interview notes, and a document analysis of online documents and paper documents. The study explored the perceptions of the principal, the math teachers, and the family of Latinx students as to how parent involvement influences the success of a middle school student in math. The researcher will gather these perceptions from home-school partnerships, overt parent involvement, subtle parent involvement, and the information discovered from family dynamics.

Howell Middle School (HMS) in the southwestern United States is a good example of a comprehensive middle school that has a growing minority population of Latinx students. The school has a student-team-based model and a large administrative team that works collaboratively with teachers to provide collaborative and creative strategies to reach students academically. There is a small number of Latinx students represented in advanced and higher-level mathematics at HMS. This middle school site is rich in information on parent involvement when working with Latinx families.

Definitions

Advanced math. This is any math class in which students are at least one grade level above their same-aged peers from the class. These students generally have tested into this class, and the class moves at a faster pace than a grade-leveled math class. In

addition, this class may be taken online or one on one in the absence of a class or a regular teacher.

Home-based and school-based parent involvement. Home-based involvement represents parents' practices related to school that take place outside of school, usually, though not always, in the home. This includes assisting children with school-related tasks, setting high expectations, and talking with children about school. School-based involvement denotes practices on the part of parents that require their making actual contacts with schools, such as talking to teachers, attending school meetings, and volunteering at events

Latinx. This term refers to a member of an ethnic group that traces its roots to twenty Spanish-speaking nations from Latin America and Spain itself, but not Portugal or Portuguese-speaking Brazil; anyone who says they are Latinx (Passel & Taylor, 2009). They cannot be understood as a distinct group, are heterogeneous with respect to race, experience varied levels of segregation and remain bound up with immigration.

Latinx family. The U.S. Census defines a family as a group of two or more people related by birth, marriage, or adoption who reside together. Cohabiting is on the rise for Latinx families. Because the researcher's population sample geographic area, the data will focus on the Mexican American family. They are characterized as, "a large and cohesive kin group embracing both lineal and collateral relatives. Ties beyond the nuclear family are strong and extensive, and reciprocal rights and duties relate to all relatives including grandparents, aunts, uncles, and cousins" (Keefe, Padilla, & Carolos, 1979, p. 144).

Parent involvement. Parent involvement is the degree to which a parent is "committed to his or her role as a parent and to the fostering of optimal child development" (Maccoby & Martin, p. 48); parenting that is "sensitively attuned to children's capabilities and to the development tasks they face promotes a variety of highly valued developmental outcomes, including emotional security, behavioral independence, social competence, and intellectual achievement" (Belsky, p. 254).

Policy makers and practitioners have prioritized parent involvement in schools as there are strong indicators that this increases the academic success of all students. The Latinx population, despite quadrupling in size over the last two decades, and comprising 25% of the entire school population, is not showing the same academic gains as the White and Asian population, especially in mathematics. What is more, researchers are discovering that parent involvement is interpreted and implemented differently for different student groups. Latinx families are involved at home in ways that support the growth of the whole student, which for years has been misunderstood by the school system as "not caring about academics." However, recent parent involvement literature supports the idea that intentional home-based involvement of setting high expectations, loving, caring, communication, and providing practical, real-word opportunities for children is what is working to help increase academic achievement. The researcher is hoping to contribute to this literature by looking at successful Latinx math students and the nuances of the involvement in which their parents and families are engaging that may be contributing to this success. The researcher intends for this data to inform schools on strategies that they can implement to get more involvement or engagement with parents

of all student ethnic groups. This, in turn, can hopefully continue to increase academic achievement and close the achievement gap.

Chapter 2. Review of Literature

Parent Involvement and Impact on Academics

The role of parental involvement in students' school experiences and academic achievement has long been of interest to policymakers, education and family researchers, parents, states, school districts, and principals. Today, K-12 principal leadership to involve and engage all parents in their children's education is essential. It is also a challenge. Secondary school principals have an enormous job and need to work more effectively with parents on behalf of adolescents because of factors associated with increased pressures of educational policy—but more important, owing to families and student demographic changes, socioeconomic differences, high dropout rates, lower graduation rates, the achievement gaps, and need for college and employment readiness. Secondary school principals are aware that parents use different forms of involvement over time from preschool through high school. Students' developmental differences across the life span suggest that "what is appropriate and effective form of parent involvement for younger children may not be effective for children in later adolescences" (McNeal, 2012, p. 88). Principals assume that parents' involvement in school decreases as children move to secondary school, in part because parents may believe that they cannot assist with school subjects and because adolescents are becoming more autonomous (Eccles & Harold, 1996). However, Hill et al. (2004) suggested that parental academic involvement matters in middle and high schools but functions differently across parental socioeconomic status (SES), education level, and ethnicity. The daunting challenge that principals face is to convince parents, some not trusting of educators, and others having had bad experiences as students in secondary school that their involvement in school is valued and important for adolescents' success. In addition, principals have

the challenge of leading school personnel in creating an inviting school environment that parents trust, in which they feel comfortable, and in which they want to be present. This environment must achieve authentic relationships in which the imbalance in the different roles of knowledge and power between parents and educators is addressed (Warren, Hong, Rubin, & Uy, 2009).

Educational and family research supports the thesis that parent involvement and family engagement expectations are fundamental to young children's learning and academic success across ethnic groups (Caspe, Lopez, & Wolos, 2007; Seyfried & Chung, 2002; Suizzo, Pahike, Yarnell, Chen, & Romero, 2012). The research suggests positive benefits of parental involvement on academic outcomes regardless of racial and ethnic background (Jeynes, 2003; 2007; Sanders, 1998).

In a longitudinal research study by Hill et al. (2004), the multiple perspectives of teachers, parents, and adolescents on parent academic involvement were examined. Some 463 families completed assessment when the adolescents were in grades 8, 9, and 11. To assess parents' academic involvement, assessments were obtained from teachers, adolescents, and mothers. Among many findings, parental academic involvement matters in lives of middle and high school students but functioned differently based on SES background and ethnicity. However, the researchers noted a limitation owing to study use of measures more appropriate for elementary school parent academic involvement. They suggested a need to develop more developmentally appropriate measures of parent academic involvement for secondary schools.

Hill and Tyson (2009) conducted a meta-analysis of parental involvement in middle schools and found that the types of parental involvement were positively related

to achievement. The findings suggested that parental involvement that creates an understanding about the purpose, goals, and meaning of academic performance; communicates expectations about involvement; and provides strategies that adolescents can effectively use has the strongest positive relation to achievement. Parent involvement of the kind that assisted, supervised, or checked homework was not consistently related with student achievement. However, school-based involvement of visiting and volunteering at the school and attending school events were moderately positive in its relation to achievement (Hill & Tyson, 2009).

Interventions

While certain interventions have proven to be successful, researchers caution about the effectiveness of parental involvement programs and practices with racial and ethnic groups in schools (Kim, 2009; Mattingly et al., 2002). A study conducted by Desimone (1999) yielded findings suggesting that the "effectiveness of particular parent-involvement practices differ according to race-ethnicity and family income" (p. 25). Comer (1988, 1995) and colleagues (Comer & Emmons, 2006; Comer & Hayes, 1991) found that parent programs geared to low-income black parents sometimes worked and influenced student outcomes but at other times did not. Delgado-Gaitan (1992) contended that nonconventional school activities, those not institutionalized to involve parents, such as special programs serving Spanish-speaking students, validate social and cultural experiences of parents and empower them to engage in their children's schooling. In the same vein, Moll, Amanti, Neff, and Gonzalez (1992) proved that educators often overlook Latinx families' funds of knowledge as a natural link for parent/family partnerships within schools. Moll et al. spoke specifically about the advantages of using family household and community assets in classroom practices and after-school study

groups. Finally, Delpit's (1995) description of other people's children showed how some educators' involvement with parents occur in such a way that parents feel, "Traditional customs, beliefs, values, and practices were devalued, leading to a sense of powerlessness, vis-à-vis the school" (p. 81).

Using NELS: 88 information, LeFevre and Shaw (2012) examined data from self-identified Latino parents and students to address research questions on parents reported formal and informal involvement with adolescents' academic achievement. The researchers' findings indicated that both formal and informal Latino parents' involvement during secondary school years contribute to adolescents' academic achievement. The results were somewhat consistent with Stewart's (2008) research (using the second wave of NELS 1990) that found parent-child discussion to be significantly associated with tenth-grade students' academic achievement. The study's findings were also partially consistent with Lee and Bowen's (2006) elementary school study that found no relationship between formal parent involvement and student achievement but a relationship between formal involvement and academic achievement.

When communication and collaboration between parents and their adolescent at the secondary level are of concern, two additional studies help to suggest what works. Focusing on just high school seniors and taking into consideration variables of demographics, socioeconomics, and immigration generation status, the strongest determination of academic success is not the mothers' behavior management of the youth, but mothers' advising and guiding of academic decisions (Buriel & Cardoza, 1988; Catsambis & Garland, 1997). To exemplify what guidance of academic decisions looks like, a study by Hornby and Witte (2010) revealed what parents do with high-

achieving high school youth: Parents value education, visit schools, advocate for their children, develop pride and self-reliance in their children, establish routines for homework and bedtime, supervise TV watching, encourage reading, talk to their children, and foster hobbies.

In addition, other benefits emerge from the literature to support successful interventions, including improved parent-teacher relationships, teacher morale and school climate; improved school attendance, attitudes, behaviors, and mental health of children; increased parental confidence and trust (Adams & Christenson, 2000; Fan & Chen, 2001; Henderson & Mapp, 2002; Jeynes 2005, 2007; Suizzo et al., 2012).

Barriers

Hornby and Lafaele (2011) explained that the barriers inhibiting parent involvement of any group are complex: parent and family (life context, class, gender), child (age, learning difficulties, behavior), parent-teacher (differing agendas, language), and society (historical, demographic, economic).

Scholars have noted that although these are especially important in schools with ethnic and cultural diversity, it is not the curriculum, the multicultural education, or culturally responsive teaching that is the quick fix to improve the academic performance of adolescents. Instead, it is the strength of the relationships and trust that school principals and teachers build with any given group of parents (Adams, Forsyth, & Mitchell, 2009; Comer & Emmons, 2006; Delgado-Gaitan, 1991; Horvat, Weininger, & Lareau, 2003; Ogbu, 1992). In many situations, the decline of parental academic involvement during adolescence is mistakenly considered by principals and school personnel to indicate parents' unwillingness to support their children (Chrispeels & Rivero, 2001; Eccles & Harold, 1996; Simon, 2004).

In research about parent involvement in adolescents' education, the evidence suggests that parental involvement tends to decline, for several reasons, in adolescents' later middle and high school years (Eccles & Harold, 1996; Hoover-Dempsey et al., 2005). Researchers surmise that, as students get older, the frequency and quality of *parent-teacher involvement* fall off because parents lack time, relax rules, and fail to monitor their children's homework. In addition, parents' personal unpleasant high school experiences, SES, immigration status, and difficulties in using the language, and imbalances in knowledge and power between educators and parents are reported to be among the main reasons for declining parent-teacher communication (Bridgeland, Dilulio, Streeter, & Mason, 2008; Eccles & Harold, 1996; Epstein et al., 2009; Hill & Tyson, 2009; Jeynes, 2005; Lopez, Scribner, & Mahitivanichcha, 2001; Rodríguez, 2002*;* Smith, 2009; Warren et al., 2009). Pomerantz et al. (2007) reminded us that as some children become older, master skills, and progress through the school system, parents generally decrease their involvement in children's schooling. In the findings of a meta-analysis on the relationship between parental involvement and urban secondary school student achievement, Jeynes (2007) supported this assertion by adding that various aspects of parental involvement in middle and high school may have less of an impact on student achievement owing to students' being more convinced of their academic strengths.

The two-way process of teacher-parent and school-based involvement in some secondary schools appears to be hindered by the wide variation in curriculum, class size, departmentalization, bureaucratic complexity, and time allotted for classes. In urban locations, it appears that educators' lack of knowledge, skills, and training to

communicate with parents hinders the two-way process. Parents' involvement in high schools is possibly hindered by the daunting appearance of a list of up to six or seven teachers and courses taken by their children (Darling-Hammond, Ross, & Milliken, 2006/2007; Flynn & Nolan, 2008; Hill & Tyson, 2009; Jeynes, 2012; Stewart, 2008; Weiss, Kreider, Lopez, & Chatman-Nelson, 2010).

These barriers and dynamics are compounded by some educators' inability or unwillingness to understand essential knowledge about Latinx families, parents, and adolescents and the differences in knowledge and power between parents and educators. More specifically, there are additional reasons why the Latinx population may encounter barriers when parent involvement at school is considered.

Often, Latinx parent involvement declines because of barriers confronted by Latinx students in high schools. According to Tienda and Mitchell (2006),

> [Some barriers are] the quality of relationships between Latinx students and non-Latinx teachers; the concentration of Latinx students in large, urban schools, that, more often than not, represent suboptimal instructional environments; [and] failures of the academic guidance programs directing Latinx students toward college preparatory courses." (p. 8)

Recent research and reports have further delineated the barriers and dynamics persisting over time that hamper Latinx and other minority parents' involvement with teachers, counselors, and principals in schools (Deslandes & Bertrand, 2005; Williams & Sánchez, 2012). Besides the barriers created by the failure to build relationships and trust between school officials and parents, a lack of cultural competency on the part of educators makes for unwelcoming environments for parents.

Aguiano's 2004 work asserted, "The educational model in the United States was originally developed for mainstream families and their children, rather than for minority parents and their children" (p. 63). Therefore, the model does not always account for ethnic minority families' diverse cultural traditions, family patterns, beliefs, and adaptive strategies that are different than those of middle-class European American families (cited in Crockett, Brown, Russell, & Shen, 2007). Obviously, this model promotes the success of whites' high school completion in the educational system, suggesting that White parents' education, parents' occupation, family structure, and psychological factors are significant. The model is much less supportive of Latinos' high school completion owing to significantly higher numbers of adolescents dropping out of high schools. The research associated with Latinos not completing high school under this model includes parental length of time in United States and, ironically, includes three other negative factors that are considered positive factors for whites: family background, parental education, and family income (Aguiano, 2004). Research on Latino home-based high school parental involvement is encouraging. The home-based involvement includes parents' promoting positive school behavior, tutoring in academics, and encouraging their children. Parents believe that these positive behaviors allow their children to prepare for a better life by completing high school (Mena, 2011).

Durand (2010) argued that there exists a disconnect about beliefs on education between Latinx parents and predominantly Euro-American school officials. Latinx parents hold beliefs regarding education and learning that may be both underestimated and misunderstood by classroom teachers, who are disproportionately Euro-American and middle class. For example, Latinx immigrant parents use the term *educación,* which

links moral, interpersonal, and academic goals. This differs in meaning from its English cognate *education*, which usually refers simply to academic goals. Likewise, Smith, Atkins, and Connell (2003) maintained that Latinx families value social responsibilities, the well-being of the group, and the interdependent relationships about individual fulfillment and choice, while the school system stresses competition within schools and individual achievement over cooperative behaviors.

Zarate (2007) added that in various situations a disconnect exists between the school and parents of Latinx adolescent students. He contends that the disconnect begins with parents' feelings of inadequacy stemming from their own limited secondary school education, unfamiliarity with the school system, language barriers, and levels of frustration communicating with school personnel. In addition, parents perceive that school personnel are more likely to help parents of high-achieving students before helping them. Zarate's (2007) research revealed that adolescents' perceptions of parent involvement are mixed. On one hand, adolescents cite the importance of emotional, motivational, and academic support from parents, but on the other hand, they report their parents' involvement in school as an intrusion, and they perceive this as their parents lacking trust in them.

Parent Involvement

According to Scribner and Scribner (2001), when talking about high-performing schools serving Mexican American students, "parent involvement encompasses a multitude of complex phenomena (p. 36)," including but not limited to family structure, culture, ethnic background, language, social class, age, and gender. This definition also applies to middle- and low-performing schools. This complexity of phenomena may contribute to some parents' decreased involvement in secondary schools, along with

some parents' perceptions of schools based on lack of communication and on miscommunication with principals, teachers, and counselors (Carew & Lightfoot, 1979). Parents can sense when their involvement is not important to some principals and other school personnel, because, according to Comer and Haynes (1991), the parents' purpose for parental participation in secondary schools is not grounded in relationship theories.

Hoover-Dempsey et al. (2005) argued,

> Whether construed as home-based behaviors (e.g., helping with homework), school-based activities (e.g., attending school events), or parent-teacher communication (e.g., talking with the teacher about homework), parental involvement has been positively linked to indicators of student achievement, including teacher ratings of student competence, student grades, and achievement test score. (p. 105)

More specifically, for the purposes of this study, research shows that parent academic involvement matters across middle and high school years based on parental education level and ethnicity (Hill et al., 2004). In addition, formal (i.e., school-based) and informal (i.e., home-based) Latinx parents' involvement affects youth's academic achievement during elementary and secondary school years (Lee & Bowen, 2006; LeFevre & Shaw, 2011).

Home-based versus School-based

Epstein (1995) maintained that educators can develop meaningful and useful K-12 parent involvement strategies if students are viewed as children versus being viewed as "just students." She insists that success is realized in external models of shared responsibility between family, school, and community and through internal models of

parenting, communicating, volunteering, learning at home, decision making, and collaborating with the community.

Grolnick and Slowiaczek (1994) strengthens the foundation of Epstein's internal model as they asserted that parent involvement (with students ages 11–14) is multidimensional and that parents can find success by engaging in overt involvement (going to school), personal involvement (caring about school and having positive interactions around school), and cognitive/intellectual involvement (exposing children to books and current events). Inevitably, using any parent involvement model influences adolescents' achievement in school.

Gordon and Lewis's (2009) research used surveys related to principal and teacher perceptions of parent and community involvement in K-12 schools. The results of the surveys revealed that schools and school leaders have an indirect influence on the subtle aspects of home-school engagement. The researchers recommended the creation of a culture of openness reflected in teachers and parents sharing the work of educating children, teachers being more responsive around student academic work, and principals making the school a friendly and trusting place for families and teachers. Jeynes's (2010) research supported the work of Gordon and Lewis (2009) and formally introduced the idea of "subtle parent involvement." He focused on three key types of parent involvement: maintaining high expectations of one's children, communicating with children, and parent style.

Evolution of Parent Involvement

From Involvement to Engagement

Examining NELS: 88 data, Feuerstein (2000) analyzed parent involvement in schooling and the student, parent, principals' responses. He concluded that parent

volunteerism and participation in parent-teacher organizations could increase when educators reached out to parents. He urged researchers to identify practices for school leaders to encourage parents, since the lack thereof was an impediment to parent engagement in schools (Feuerstein, 2000). Parents' decisions to be involved in their children's schools appeared to depend on their perceptions of trust and understanding school expectations and opportunities for their youth, and that principals' reaching out to parents was one way to establish trust (Adams & Christenson, 2000; Adams, Forsyth, & Mitchell, 2009; Eccles & Harold, 1993; Feuerstein, 2000; Padilla, 1996).

Continuum of Involvement

Simon (2004) analyzed data from more than 11,000 parents of high school seniors participating in the NELS: 88. She discovered that regardless of the students' background and achievement, school outreach programs positively and significantly predicted parents' involvement in school and home activities to support their youths' learning. Activities included parenting college-planning workshops, volunteering for school activities with youth, and working with youth on homework. The results revealed a pattern of parents' negative responses when schools merely communicated with parents about youths' attendance and behavior issues. These results resemble issues raised by Carew and Lightfoot (1979) and other researchers regarding form and shape of school communication and collaboration with parents.

Federal and State Policy Changes

With the advent of NCLB (NCLB, 2002), policymakers advocated for increased participation of parents considered as a regular two-way meaningful communication involving students' academic learning and other school activities (Mapp, 2012; U.S. Department of Education, 2007). Section 1118 of the NCLB required districts to assist all

schools in developing programs to involve families in ways that supported student success (Part a, 2, B). Punitive measures of NCLB have since made educators and parents skeptical about the intention and value for many students (Gay, 2007). Nevertheless, this policy's emphasis on parent involvement is not unreasonable because several decades' worth of education and family research supports the conclusion that parental and family involvement in school is advantageous for children of all ages (Anguiano, 2004; Comer & Emmons, 2006; Fan & Chen, 2001; Eccles & Harold, 1993; Epstein, 2001; Hoover-Dempsey et al., 2005; Jeynes, 2003; Mapp, Johnson, Strickland, & Meza, 2008; Mena, 2011; Pomerantz, Moorman, & Litwack, 2007).

As noted earlier, when considering parent involvement legislation, it is important to be mindful of the one-size-fits-all approach. A look at policy and the Latinx population is necessary. The barriers Latinx parents face in realizing their adolescents' educational goals is a major policy concern and a critical leadership challenge for principals and teachers (Carnoy, 2000). As such, the federal government is pushing for increased school and Latinx parent partnerships. For example, in 2011 President Obama (2011) forwarded an agenda to address school and family involvement in Latinx education. In the report, titled *Winning the future: Improving education for the Latino community*, the president concluded that "reforming our school is a shared responsibility and should not be shouldered on teachers and principals alone; we must support families, communities, and schools to work in partnership to address the full range of needs of Latinx students" (pp. 6–7). President Obama promoted a success model rather than the deficit thinking approach sometimes used in education.

The report also included the following data that reflected the challenging educational conditions of Latinx children and adolescents that must be addressed by the U.S. education system: "Latinos are the largest minority group, with 12.4 million or 1 in 5 Latinos in grades preK-12 in the American public education system, yet only about half earn their high school diploma on time, and are only half as likely as their peers to be prepared for college" (p. 2). Recently, Pew Hispanic Center reported on Hispanic adolescents (Fry, 2011; Fry & Lopez, 2012) adding a more positive picture of these dire data, highlighting statistics on high school completion and college attendance:

> Today, with the high school completion rate among young Latinx at a new high, younger Latinx than ever are eligible to attend college. According to the Pew Latinx analysis, 76.3% of all Latinxs ages 18 to 24 had a high school diploma or a General Educational Development (usually referred to as *GED*) degree in 2011, up from 72.8% in 2010." (Fry & Lopez, 2012, p. 5)

Math and Parent Involvement

Parent Involvement

As the parent involvement literature states, using any parent involvement model influences adolescents' achievement in school. For example, adopting the work of Epstein to frame their inquiry, Fan and Williams (2010) concluded that different content of parent-school communication leads to potentially differential associations with adolescents' academic self-efficacy in math and English. In addition**,** parents' educational aspirations for their children stood out as a strong positive predictor for adolescents' academic self-efficacy in math and English, and students' senses of competency were greater when their parents were involved in more school functions.

Ethnicity

Desimone (1999) studied parent involvement in children's learning at school and at home by their racial-ethnic and economic backgrounds and found a statistically significant difference in the relationship between parent involvement and student achievement pursuant to students' race and ethnicity. In addition, she determined that there were differences in parent involvement in relation to math and reading achievement depending upon whether the involvement strategies were reported by the student or reported by the parent. Desimone's early work supported the research of Fan and Williams (2010) on the content of parent-school communications for the subject areas of math and English.

Yan and Lin (2005) conducted research on parent involvement and twelfth-grade students' mathematics achievement across racial and ethnic groups. They examined the relationships of three dimensions of parent involvement (family obligations, family norms, and parent information networks) to students' mathematics achievement and ways in which these relationships varied across Caucasians, African Americans, Latinxs, and Asians. Findings indicated that parent involvement, as a form of social capital, was generally a salient indicator in explaining the mathematics achievement of the Caucasian students. Close parent-teenager relationships were among the major ways in which minority (except Latinx) families positively influenced their teenagers' mathematics outcomes. Regardless of racial or ethnic background, parents' educational expectations had the strongest positive effect on twelfth-graders' achievement in mathematics. Yan and Lin (2005) suggested further exploration on factors that encourage parents of various racial and ethnic backgrounds to provide support and assistance to students. Fan and

Williams showed that relationships with parents and communication around academic subject areas such as math and English appeared to enhance parent and school partnership with minority students (2010).

Latinx Families

Kuperminc et al. (2008) examined Latinx parent involvement and teacher expectations, showing that parents' guiding students' academic work contributed to students' positive perceptions of school belonging and contributed to teachers' expectations for students' academic attainment.

Understanding Funds of Knowledge

Moll et al. (1992) and Gonzalez et al. (1995) advanced a body of research by identifying the "funds of knowledge," accumulated and culturally developed bodies of knowledge and skills essential for household or individual functioning and well-being. The research identified the discontinuities that should not exist in the crucial and marked difference between the Latinx home environment and the school environment. The school and classroom should become more like a home environment that is flexible, adaptive, and activity-oriented (Hogg, 2011; Rodriguez, 2013).

Research by Linse (2011) on English-proficient speakers suggested using a taxonomic approach to examining the specific types of contact that take place between homes of culturally and linguistically diverse learners and schools to determine whether the schools are inviting or distancing in nature. This approach, not specifying grade level, is based upon the number and variety of languages spoken at home, the various cultural backgrounds, the prevailing cultural bias of the school community, and the school's system of operations. So, what exactly would this mean for the daily workings of a given school? According to Linse (2011), schools inadvertently distance themselves from

families who may have a language barrier, may not be literate in English, or may have a different interpretation of parent-teacher conferences or even feel slighted when their child is used as a language broker, thereby undermining the power base in the family. Educational and family researchers have suggested the kinds of critical information school personnel should have and use appropriately to work with Latinx families and student's secondary education. It starts with a whole school demonstrating kinds of respect and knowledge of Latinx families that potentially earn trust from parents and students.

A Look at Subtractive Schooling

Angela Valenzuela, in her work, *Subtractive Schooling*, stated that schools make blanket judgements about ethnicity and underachievement and the school system often tries to change Latinx students to conform to the dominant culture. She encouraged schools to consider the students' strengths and to be aware of the subtractive nature of devaluing their cultural identity. Mexican born students, for example, often find it difficult to develop social relationships or to develop meaningful connections with their teachers. Latinx students find that their names are often revised or that the identities that they were born with are changed in some way (1999).

Mexican born students also find that the U.S. curriculum often does not mirror their experience in Mexico with hands-on learning with real world connections and group-based learning. More academically advanced Latinx students find themselves in remedial classes because of their language barrier to English. Not being proficient in English is often equated with ignorance and Mexican born students are not always afforded the opportunity to take academically advanced subject matter. However, the data

for U.S. born Mexican, is much different. Academic achievement is not an overriding concern and are best described as de-capitalized (p. 117).

U.S. born Mexican students can struggle with their identity, however, if their assimilation process is quick. This is known as subtractive assimilation because schools do not reinforce students' native language skills and cultural identity (p. 25). Schools can fail these students if assimilation is too quick as it deprives them of the necessary social capital, they need to navigate the school system. Valenzuela states that, "schools fail students with a pedagogical logic that not only assures the ascendancy of a few, but also jeopardizes their access to those among them who are either academically strong or who belong to academically supportive networks" (p. 30). Students often report that they do not feel that the school or the teacher care about them and their parents report that the school does not put enough effort in communicating with them when their child is struggling academically or has an attendance issue. When schools do not connect with students, they detach themselves from school. This is the case with many Latinx (and other minority) students. When these students are not connected to school, then their academic achievement suffers.

Latino Education Crisis

Only one in ten Latinx students has a college degree compared to more than one in four White Americans and more than one in three Asians. The population of Latinx students continues to grow in the southwest United States, yet there is no evidence of a turnaround in the increased number of students who are graduating from high school, going on to college, or increasing their income (p. 5). By 2025, the U.S. Census predicts that one in four students with be Latinx (p. 17). As Gandara and Conteras concluded,

"There is a strong correlation between education and income of parents and the achievement outcomes of their children. Nearly 40 percent of Latinx students come from homes in which parents have not completed even a high school education and this is true for only about 4 percent of White students" (p. 29).

Education is the single most effective way to integrate the burgeoning population of Latinos into the U.S. economy and society. Teachers need to more training on how to work with students, meet their academic and personal needs, and find ways to communicate with parents. Parents need support and training on how to better educate themselves personally and how to navigate the American public-school system. If they do this, parents will not only be able to develop personally, and in building this social capital (having access to important social networks) and cultural capital (knowing how things work), they will be able to give their children a better life.

School Leaders and Parent Involvement: A Look at Leadership Styles

Gronn (1996) emphasized that leaders mobilize a meaningful course of action, influence a significant effect on individual or group well-being, bring about an emotional connection between themselves and others, and inspire and represent individual and group aspirations and hopes. Frick and Frick (2010) asserted that "much of the practical ethics espoused within the field of educational leadership focus on the individual actor as leader based on moral suasion" (p. 117)—but also overlooked moral leadership as being spread over many persons making up the school community. They believed that moral and ethical leadership should be understood and practiced as distributed within the "organizational life" of the school. They believed principal leadership should function as an "ethic of connectedness" serving to conceptualize practices of collective moral leadership. Consequently, principals' practicing the central concepts of the ethic of

connectedness, community building, and welfare, along with moral shared leadership theories, may enhance the two-way parent involvement in schools.

Considering the challenges secondary school principals face in involving parents in schools, improving parent and teacher engagement, and increasing the connectedness with Latinx parents, there needs to be a focus on selective educational leadership theories that provide the constructs, concepts, and propositions promising to support principals in their moral and shared leadership styles in their schools and communities. The information gleaned from the literature on Latinx parents' involvement and engagement in schools suggests that principals face leadership challenges that require enlarging their mindset and management skills. Mindset may include belief, attitude, conviction, and approach to leadership. Management skills include proficiencies in establishing publicly shared leadership. The review of the literature on leadership theories starts with moral leadership and the key concepts of relationship or shared leadership.

Selective characteristics and qualities of numerous leadership theories come into play as principals traverse working with students, teachers, parents, community, and other stakeholders. Moral and ethical leadership consciously strengthens and stabilizes the foundation of leadership practices. Moral leadership constructs such as trust, cooperation, moral purpose, and shared leadership undergird traditional leadership theories (Greenfield, 2004).

Moral Leadership

Moral leadership is not a new concept (Hiller, Day, & Vance 2006; Leithwood & Mascall, 2008; Gordon & Louis, 2009; Pearce & Conger, 2003), but it has been given more attention over the last two decades due to the emergence within educational administration of both the critical humanist perspective and the ethical dimensions of

school leadership and administration (Greenfield, 2004; Starratt, 1991). Educational leaders have a moral obligation to assure that good conditions prevail, see that all children are well served, and support teachers in their efforts to instruct all children effectively. Teachers have a moral obligation to educate all children holistically and recognize their unique ways of learning (Greenfield, 1995).

Principals must be stewards of their schools to create and nurture learning environments for their students as well as for themselves (Greenfield, 1995; Sergiovanni, 2000). While moral leadership sounds like a positive development, there are still schools that "don't manage to educate a diverse set of students for constructive social interaction and shared decision making" (Darling-Hammond, 1997). Darling-Hammond suggested a practical application of moral leadership in schools that would include redesigning schools to focus on learning and to support deep intellectual work and strong relationships with students, creating a PLC for teachers to meet the needs of diverse students. This application would also fund schools equitably to invest in teaching and learning.

Sergiovanni (2000) argued that schools need a special kind of leadership because moral purposes and values play such a significant role in creating the character and climate of schools. Schools are places where students work hard to achieve necessary intellectual knowledge, developmental growth, life skills, and habits of mind and heart. In working toward a focus on leaders building relationships and creating a profession of teaching in which teachers feel confident not only to teach diverse learners but also to reach out to parents and community members, the collaborative style of leadership comes into play. In order to do these things, leaders act as stewards, which is an act of trust,

whereby people and institutions entrust the leader with certain obligations and duties to fulfill and perform on their behalf" (Sergiovanni, 2000).

Shared Leadership

Leithwood and Mascall (2008) used the term "collective leadership" or "shared leadership" to signify their relatively narrow preoccupation with the combined effects of all sources of leadership and the possible differences in the contribution to such effects by each source (e.g., administrators, teachers, students, parents). This focus is only one of a wider set of interests pursued by others doing research on distributed leadership (e.g., Gronn, 2002), shared leadership (Pearce & Conger, 2003), or dispersed leadership (e.g., Ray, Clegg, & Gordon, 2004). More specifically, it encompasses leadership about the functions and practices that are distributed (e.g., Spillane, Camburn, & Stitziel Pareja, 2007), who performs which function or practice (e.g., Firestone & Martinez, 2007), and whether some practices are better carried out by certain people or roles rather than others (e.g., Leithwood et al., 2004; Locke, 2003). Although there is the potential in schools to involve a variety of people in leadership functions, most research so far has focused on the work of teachers and school administrators. Many other people and roles have the potential to exercise influence in schools, however, including parents, students, and other members of the wider community.

The research of Pounder, Ogawa, and Adams (1995) is one example of research that examined leadership provided by school administrators, teachers, secretaries, and parents. Another example of research that has looked at the principal and teachers' perspective is that of Gordon and Louis (2009). In their analysis, they drew upon surveys of principals and teachers that focused on factors associated with an increased level of outside stakeholder involvement and influence in schools. In addition, they examined

factors positively associated with student learning, specifically principals' openness to community involvement in relation to student achievement.

One more example of research that explored principals and teachers is Bryk and Schneider (2002). They were intrigued to see that both staff teams and parent advisory groups were identified as having significant correlations with all mediators and with student achievement. According to Bryk and Schneider (2002), in schools with prominent levels of student achievement and high ratings for capacity, motivation, and setting, we are more likely to see higher levels of influence from staff teams and parent advisory groups. This suggested that there may be something about the collective nature of these roles that adds to their influence in the schools. In sum, their results indicated that the degree of influence on most situations involving leadership tended to be a more hierarchical conception of leadership. Accordingly, teachers rated traditional leadership much higher than nontraditional, and the influence of parents and students was significantly related to student achievement. School decisions were seen to be influenced by a broad array of groups and people, reflecting a distributed conception of leadership.

Current leadership practices are more linear and a little less hierarchical. This is proving successful in improving not only staff morale, but also student achievement. Together, they share key concepts of trust, cooperation, communication, shared decision making, and, most important, moral purpose.

School Leaders and Parent Involvement: Practical Advice for Principals

Fuligni and Hardway (2004) suggested that the first thing that principals need to know is that some schools with higher enrollments of Latinx students have both inexperienced teachers and a social climate that is not conducive to learning.

Furthermore, in these contexts Latinx students are less likely to be involved in out-of-school programs or attend school-to-work programs.

Guerra and Valverde (2008) offered principals suggestions when working with adolescents and their Latinx families. Principals must be aware and move away from deficit thinking in order to have these families trust them and become more involved with school. Suggestions for principal action include home visits, neighborhood activities sponsored by community organizations, and speaking to Latinx families in Spanish as ways to reach out. Other activities that leaders could engage in include practicing servant leadership, working with local politicians to reach out to the communities, and empowering parents through English-language classes, and informing them of school policies and procedures.

Principals need to know that parental engagement in adolescents' learning is linked to SES, parental experience of education, and other family members' involvement, including grandparents, aunts, uncles, siblings, and other kin (Weiss, Lopez, & Rosenberg, 2010). In addition, Harris (2007, 2008) suggested that schools that offer bespoke forms of support to parents (e.g., literacy and parenting-skills classes) are more likely to engage them in their children's learning.

Porras-Hein (2003) described how two principals working with Mexican American parents used "micro-acts of leadership." Essentially, actions included dealing with critical issues affecting parent-school interaction such as Mexican American family cultural values and norms, and support for social-structure variables such as economic, education-training, and communication. The principal in the study organized onsite council meetings during the school day. Also, the principal provided substitute teachers

so that teachers and parents could interact during the school day while the principal incorporated services for the families' basic needs such as providing ethnically specific meals, transportation, childcare, and meeting minutes in Spanish.

Patrikakou and Weissber, (2000) claimed that the outreach of principals and teacher to parents is the strongest predictor of parent involvement and the greater communities' positive perception of schools. The outreach includes keeping parents informed about their child's strengths and weaknesses and providing specific suggestions to help their child.

A growing body of research has informed about the importance of effective principal leadership for parental involvement in elementary schools (Caspe, Lopez, & Wolos, 2007; Giles, 2006; Ho, 2009; Xu, Benson, Mudrey-Camino, & Steiner, 2010). Many of these studies have reported findings in support of principal leadership to form partnerships with minority families (Epstein, 2001; Epstein, Galindo, & Sheldon, 2011; Kim, 2009; Scribner, Young, & Pedroza, 1999). As an example, in a survey to explore factors that affected 407 K-12 schools and parent partnerships of National Network of Partnership Schools, Epstein et al. (2011) found positive results regarding the role of the principal: "The principals' support for partnerships consistently, significantly, and positively influenced schools' basic program implementation and advanced outreach to involve more parents" (p. 488). The National Network of Partnership Schools served students from varied racial and ethnic backgrounds. A large majority of the schools in twenty-four districts and fifteen states received school-wide or targeted Title I funds. The survey sample included mostly elementary schools and middle schools, with only seven percent being high schools. One result was that a greater percentage of educators in the

elementary and K-8 schools reported greater progress in meeting the challenges of parent involvement and engaging family than did educators in secondary schools.

We know that some principals are mindful of the importance of parent involvement and engagement in their adolescent's education (Hoy, Gage, & Tartar, 2006). Simon (2004) showed from the National Educational Longitudinal Study of 1988 reports on 11,000 parents of high school seniors and 1,000 high school principals that when educators guide and solicit parent involvement, parents became more engaged in supporting student success. In contrast to the findings of Epstein et al. (2011) and Simon (2004) about positive effects of principal support of parents' engagement in high schools, researchers claim there is an existing two-way decline between school-parent involvements that reflects on a whole school issue. It raises questions about principal leadership to involve families as partners with teachers in secondary schools, and particularly for this study, principals' efforts to involve Latinx parents (Adams & Christenson, 2000; Deslandes & Bertrand, 2005; Falbo, Lein, & Amador, 2001; Gerhart, Harris, & Mixon, 2011; Jasis & Ordoñez-Jasis, 2012; Mexican American Legal Defense Fund & National Education Association (MALDF/NEA), 2010; Tienda & Mitchell, 2006; Williams & Sánchez, 2012).

Principals should also be aware of the presence of "colorblindness," though the phenomenon is often unintentional. The idea of colorblindness denies the salience of race, scorns those who talk about race, and increasingly proclaims that all are Americans (Bonilla-Silva, 2004). In his work on colorblindness in teacher education, Rosenburg (2004) said that colorblindness entails a contradiction of "claiming not to see race while being conscious of it, as well as constituted by it" (p. 258). When educators fail to engage

in race-related discussions they have no framework in which to critically consider how racism shapes policy and practices. If leaders want race-related conversations and change, leadership programs must prepare them (Diem and Carpenter, 2013).

Teachers and Parent Involvement

According to Flynn and Nolan (2008), another barrier is that many secondary teachers do not view parental involvement as important and discourage parents' participation. High school teachers often confuse the need for adolescent autonomy with the need for parent-teacher collaboration, and they tend not to encourage parents to assist their children with their homework.

The reluctance of some teachers at any high school grade level to foster alliances with the home has also been associated with teachers' lack of self-efficacy. Some teachers who do not feel confident in effectively communicating with parents generally avoid such contact (Fan & Williams, 2010). While teachers do care about their students, they sometimes lack the time and the confidence in training to do their duties with communicating and involving parents. Along with teachers' not feeling prepared, it can be argued that another barrier is the dominant American attitude that there is a fundamental new level of distrust toward public schools. The challenges of public high school principals are to remove levels of distrust and build the kind of trust that teachers and parents consider honest and reliable (Adams et al., 2009; Bryk & Schneider, 2002; Greenfield, 2004; Hoy & Tschannen-Moran, 2003). Building trust removes some barriers and improves the schools' credibility to address parenting and family concerns about pressing issues such as youth dropping out, graduating from high school, getting jobs, and going on to college (Eccles & Harold, 1993).

Implications for Practice

Adams et al. (2009) defined trust as the alignment between the moral purpose of the group and one's own moral values. Hoy and Tschannen-Moran (2003) defined trust as an individual's or group's willingness to be vulnerable to another party based on the confidence that the latter is benevolent, reliable, competent, honest, and open. Benevolence places the needs of others ahead on one's own. Reliability refers to the degree to which one person can be dependent on to do agreed-upon responsibilities. Competence is one's possession of skills needed to do tasks capably. Honesty refers to involving others with sincerity and truth. Openness refers to fully exposing one's actions and intentions in social interactions.

If parents are to trust principals, they must have faith in that the principals are qualified, just, and trustworthy and have their children's best interests at heart (Adams & Christenson, 2000; Bryk & Schneider, 2002). In most schools, such trust is built over time, based on sustained interactions between parents and educators. In the absence of prior contact, Bryk and Schneider (2002) asserted that families and educators may rely on the general reputation of the principal and on commonalities of race, gender, age, religion, or upbringing to assess a new person's trustworthiness. The more parents and principals interact in trusting relationships over time, the more likely their willingness to trust one another will be based upon the other person's actions and their perceptions of one another's intentions, competence, and integrity. Social trust reduces transaction cost and thus increases efficiency in the production of desired outcomes. The absence of trust has been linked with estrangement, isolation, and anxiety (Daly & Chrispeels, 2008; Goddard, Salloum, & Berebitsky, 2009).

In their framework, Adams et al. (2009) presented trust in schools as more role-group specific. They argued that the behavioral tendencies of a role group, not solely one individual in the role group, produce the normative mechanisms needed to influence trust perceptions. Trust develops when individuals behave in a manner consistent with the expected responsibilities of their role group, such as principals, teachers, and parents. In addition, their empirical evidence of trust forming from the relationships among role groups, namely group behavior, beliefs, and feelings (Adams et al., 2009), was consistent with the funds of knowledge literature of the Latinx family dynamics in their homes and communities (Gonzalez et al., 1995). Group roles and relationships meant establishing shared beliefs, values, responsibilities, and cooperation for boundary spanning among principals, teachers, and parents within the formal and informal conditions of the larger school contexts (Fan & Chen, 2001). Thus, the boundaries can become blurred when parents go beyond helping with homework and attending back-to-school functions.

Frustrations arise when trust and family-school relationships are considered, including the American attitude of distrust with schools, principals' feeling pressured by federal policies, and teachers' feeling ill prepared and lacking confidence. However, the research indicates that in order to build trust there must be role-specific leadership, which is like the culture and family dynamics in the Latinx home.

What Teachers Need in Their Work with Parents

Earlier in this manuscript, Latinx families were defined as having a family household, or group of two or more people related by birth, marriage, or adoption and reside together (to also include cohabiting). As of 2006, 82 percent of Mexican families are in a "family household," with 69 percent of them headed by a married couple (Landale et al., 2006).

Keefe, Padilla, and Carlos (1979) characterized the Mexican American family "as a large and cohesive kin group embracing both lineal and collateral relatives. In addition, ties beyond the nuclear family are strong and extensive, and reciprocal rights and duties relate to all relatives including grandparents, aunts, uncles, and cousins" (p. 144).

Finally, families engage in *compadrazgo,* or ritual coparenthood, associated with choosing godparents who are then included as members of the extended kin network, taking on rights and obligations more characteristic of relatives than friends (Keefe et al., 1979).

Latino families are strongly influenced by the concepts of *familisimo* and *simpatia*. *Familisimo* is defined as devotion and family-centered concern. *Simpatia* is the tendency to seek harmony in interpersonal relations (Sotomayer-Peterson, Cabeza de Baca, Figueredo, & Smith-Castro, 2012). *Familismo* can summarize these two concepts into the subordination of individual interest to the family's interest. In addition, there is a protective factor owning to the extended family networks and elevated levels of social support (Landale, Oropesa, & Bradatan, 2006). Finally, the parental endorsement of Mexican traditional values is associated with parenting practices that emphasize child obedience.

Mexican families are characterized by large and cohesive kin relationships with ties beyond the nuclear family (grandparents, aunts, etc.). There is compelling evidence that social support from these extended kin network is an important influence in children's ontogeny throughout history (DeBaca et al., 2012). With this reliance on extended kin comes great responsibility to these adults or "helpers at the nest." They become what research has noted as *alloparents*, or adults other than parents and teachers

who are important in a child's life. The most significant alloparents are usually the maternal grandmother, aunt, uncle, and paternal grandmother (DeBaca et al., 2012).

As noted, Moll et al. (1992) defined "funds of knowledge" as historically accumulated and culturally developed bodies of knowledge and skills essential for household or individual functioning and well-being. The qualitative work of this group allowed for both anthropologists and teachers to enter the home on a specific home visit to study how household members used their funds of knowledge in dealing with changing, and often difficult, social, and economic circumstances. The group found that the crucial and marked difference between the home and school environment was that the home was flexible, adaptive, and active, while the classroom setting was more encapsulated. Knowing about the flexible, adaptive, active environment of the Latinx home is important for the educator's education in what the students are bringing to the table at school.

The implications from this research for the principal leader were that (a) adolescents had meaningful and productive relationships with multiple persons outside the home, (b) these exchanges involved reciprocity, (c) these reciprocal exchanges were based in mutual trust, (d) the youth were active participants, and (e) the learning was motivated by the youth's interests and questions. These findings were taught to teachers in an after-school setting (Moll et al., 1992).

What Parents Need in Their Work with Teachers and Their Child

The data show that the Latinx population grew by 58 percent from 1990 to 2000, and in 2003, it became the largest "minority" community in the country, with a total of 38.8 million people. A noteworthy characteristic is that more than one-third of Latinxs are under 18 years of age, and almost half are under the age of 25.

Latinx students represent the second-largest segment of the school-aged population in the United States, second only to non-Latinx whites. However, Latinos are less likely than most other groups to complete high school (70 percent compared to 90 percent of both White and black students) and enroll in college (26 percent); they have fewer employable skills, exhibit more mental health issues, and engage in risky behaviors compared to their White, Asian, and African American classmates (Perez 2004; Fuligni & Hardway, 2004; U.S. Census, 2010).

Crockett, Brown, Russell, and Shen (2007) developed a conceptual model of Mexican American adolescents' relationships with parents. The model contains explanations of parenting with the two most important themes of relationship quality and parental caring in the center. Five general themes regarding good parent-adolescent relationships emerged from the qualitative analysis: valued relationship qualities, open communication, support (both emotional and instrumental), and indirect displays of caring and parental control.

The valued qualities of honesty, trust, and respect were not mentioned in detail by the focus groups but were linked to open communication qualities such as talking, advising, understanding, self-disclosure, and giving space. The data indicated that both boys and girls had excellent communication with their mothers, while the boys had limited overt communication with their fathers. The communication with the father was indirect; they just knew he cared about them (Crockett et al. 2007). Finally, parental control included strictness, parental monitoring, and a form of conditional permissiveness. It was found that each parent interpreted strictness differently based upon culture, gender, and parental upbringing.

Boys and girls identified parental upbringing, culture, gender, and life stage as forces shaping teenagers' relationships with parents. Teenagers also understood that their parents' early experiences and upbringing differed from the lives of teenagers growing up in the United States today. In addition, the teenagers showed an awareness of cultural differences and acculturation by characterizing Mexican parents as being strict in comparison with Anglo families who were perceived as more affectionate and permissive (Crockett et al., 2007).

The body of research on Latinx family dynamics suggests that adolescents' understandings of good parent-child relationships are shaped by cultural norms, which affect the salience and meaning of particular parenting behaviors. In particular, teenagers of Mexican descent might be influenced by cultural values such as *familismo* and *respeto* (respect) and by their acculturation experiences in the United States. In fact, the adolescents from this body of research report more positive attitudes toward their parents and express greater satisfaction with family life (Crockett et al., 2007).

Finally, it is important to reiterate that parental support followed traditional gender lines. Mothers were more expressive and nurturing, showing affection directly and providing emotional support as well as instrumental support in the form of physical care. Fathers primarily offered instrumental support, providing for the family, but also showed some indirect forms of emotional support (Crockett et al., 2007).

Clearly, parents in general are not technical experts like teachers; nor do they possess the depth of knowledge at the managerial level like administrators, but they do know their children ostensibly better than teachers or administrators, and they share in the responsibility for their children's learning (Adams et al., 2009). The researchers believed

that parent-school trust, similar to teacher trust, would vary depending on organizational conditions and practices that help promote synchrony among parents, teachers, and administrator role groups.

Chapter 3. Methodology

Statement of the Problem

Data indicate that the Latinx student population has quadrupled in the last two decades and is slowly becoming the majority minority student population in public schools. Despite this growth, Latinx students are not as successful academically as their Caucasian and Asian peers. More specifically, Latinx students are also not being placed in or taking advanced classes at the same rate as their peers.

Current research indicates that subtle home-based parent involvement increases academic achievement. Although there is much research on parent involvement at the elementary level and research on successful programs that reach our majority student population, there is a limited amount of research concerning secondary Latinx student parent involvement when math education, subtle, home-based parent involvement, and the perceptions of the teachers and principals are considered. The purpose of this qualitative, phenomenological study has been to explore how parental involvement is supported and encouraged for middle school students in accelerated math from the perspective of the principal, the math teachers, and the family of Latinx students.

Research Questions

The following research questions have guided this study:

Research Question 1 (RQ1): How do middle school administrators encourage and support home-based Latinx parent involvement in advanced mathematics?

Research Question 2 (RQ2): How do middle school math teachers encourage and support home-based Latinx parent involvement in advanced mathematics?

Research Question 3 (RQ3): How do Latinx family members facilitate support for advanced mathematics?

Research Design

This qualitative study has followed a phenomenological approach. Qualitative research is suitable when there is a problem or issue that needs to be explored. Such research is an effort to understand the nature of a setting and the experiences others have in this context (Merriam, 2009). It is a form of analysis that provides a depth of understanding for those who are interested in the events of an identified setting and time.

More specifically, say Gentles, Charles, Ploeg, and McKibbon (2015), "Phenomenology is a form of qualitative inquiry in which researchers aim to develop new understandings of human lived experience, relying on the first-person accounts generally obtained through participant interviews" (p. 1772). Phenomenology is a relevant philosophical methodology that researchers utilize to describe issues such as the phenomena of parent involvement through the lens of math teachers, building administrators, and parents of Latinx students when advanced math classes are concerned.

Edmund Husserl is considered the fountainhead of phenomenology in the twentieth century. He believed that to separate science from philosophy, researchers needed to direct their attention toward meanings that connect people's experience of objects (Guigon, 2006). These meanings are derived from an analysis of descriptions derived from the individual interviews. The philosophical phenomenological method encompasses four interlocking phases: epoche, phenomenological reduction, imaginative variation, and synthesis.

The epoche is a warning to be cognizant of what exists and to stay away from the familiarity of everyday happenings, events, and people. The second phase, phenomenological reduction, brings precision to research findings. Imaginative variation

seeks possible meanings through differing perspectives, roles, and functions (Zeeck, 2012). The synthesis of meanings and essences is a process to bring all fundamental, structural, and textural descriptions into a combined statement of the essences derived from the experiences of the entire phenomenon (Zeeck, 2012). For this study, the researcher provided rich descriptions of participants' perceptions of parent involvement and their roles, when Latinx students and their math success was considered.

Significance of Study

Researchers use the phenomenological approach to comprehend participants' perceptions of the significance of the phenomenon being examined (Creswell, 2003). Maxwell (1996) stated that a phenomenological approach is best suited when an investigation has three important purposes: (a) generating results and theories that are understandable and experientially credible, (b) conducting formative evaluations to improve existing practice, and (c) engaging in collaboration with practitioners or research participants.

Because the researcher sought to gain a deeper understanding of a phenomenon, the phenomenological approach was appropriate. For example, although there is much data regarding the benefits of parent involvement, the data focuses on the more quantifiable measures like helping with homework and going to a school event, compared to the more subtle types of involvement, like modeling academic behavior, setting high expectations for academic success, and providing a loving family environment rich in communication, that have proven to be successful in reducing the achievement gap (Jeynes, 2010). Concerning reduction of the achievement gap, it is well accepted that children's home environments affect their attitudes toward mathematics, and parent-teen discussions conducted at home predicted higher student mathematics achievement in

middle and high schools (cited in Epstein, 2005). Epstein continues that math workshops and interactive homework have been associated with increased family involvement with students' math learning. Knowing this, it is both necessary and challenging to focus on both the strategies used by math teachers and the leadership qualities of the principal to encourage and develop subtle, home-based parent involvement strategies where math is concerned in middle school.

The qualitative phenomenological approach to the study has helped to define and describe the leadership style of the principal, the strategies used by the math teachers, and the parenting styles used by family members to develop the best communication possible when the math success of Latinx middle school students is addressed. The product from this phenomenological case study has helped inform the school district and school site of strategies that are working and ideas for new strategies to encourage more subtle, home-based parent involvement that will hopefully increase the communication between the parents and schools when mathematics achievement is concerned. More specifically, this research has contributed to the dearth of literature on how schools can most effectively work with minority student populations and their families to break down communication barriers and increase academic achievement.

Researcher's Positionality

For over a decade, the researcher has been studying parent involvement, the family traditions, the parenting styles of Latinx families, and leadership styles when working with diverse populations. In addition, the researcher began her administrative career as a principal of an alternative high school near the start of her studies with a high population of Latinx students—working closely with the students and their families, helping them to navigate the school system, and working to help students both personally

and academically. The researcher analyzed the data from the study through the lens of a middle-class White female and maintained every effort to maintain neutrality throughout the analysis process.

Additionally, the researcher was employed for three years as an administrator by the school district where she conducted the research. The researcher was both an associate principal and a principal at one of the middle school sites in the district and, during her employ there, had a professional and collaborative working relationship with the current principal of the school where the research for this study was conducted. The researcher was aware of any possible biases in her work and followed strict interview and research protocol as outlined in this chapter.

Study Limitations

Meriam (2009) stated, "Qualitative case studies are limited, too, by the sensitivity and integrity of the investigator" (p. 52). The researcher is the person who collects the data and completes the analysis. Training in interviewing, observing, and creating the final report is not often accessible to researchers; thus, they are left to rely on their own instincts and abilities. In addition, there are limitations in using phenomenology as well.

Van Manen (1990) stated, "The subjectivity of the data leads to difficulties in establishing reliability and validity of approaches and information, it is difficult to detect or to prevent researcher induced bias, and the small, phenomenology samples usually do not produce generalizable data" (p. 152). Researchers need to be aware of trustworthiness and biases that can affect their analysis and final conclusions (Merriam, 2009).

The researcher of this phenomenological case study has taken graduate level classes in which she has practiced interviewing participants to collect data. In addition, she has practiced interviewing participants in a mock interview situation for a specific

class. The researcher has worked both with Latinx students and their families and for the school district in which the research was be conducted. The researcher has also had personal experience as a middle school principal where she was both an advocate for Latinx families and worked closely with teachers, assisting them in conversations starters and written communication with parents. The researcher has also been a math teacher evaluator at this school site. During the research process, teachers saw the researcher as an expert and asked the researcher for ideas on how they could better communicate with their students' parents to improve support and involvement.

The researcher was aware of any possible bias and followed all interview protocol. Notably, she obtained information pertaining to the school and the district only as a layperson as she is no longer employed by the district. Also, to ensure that any bias or experiences did not interfere with her data analysis, she employed member checking, which allowed all persons interviewed to review the transcripts for accuracy, and triangulation, which provided for another graduate student to read random selections of interviews to verify the results. These techniques provided checks on the researcher's perception of the data as influenced by her personal and professional experiences in the employment field.

Research Setting

The setting for the study was a public-school district in the southwest area of the United States. Cactus School District (CSD) borders the largest metropolitan city in this county and serves students in both suburban and rural areas. CSD has 12 elementary schools, 2 middle schools, 2 high schools, and 2 alternative schools/programs. The district has about 1,800 employees, serves 12,300 students, and is part of a community that is 90 minutes south of the state capital and just outside of the largest southern city in

the state. The town in which the school district resides was incorporated just over 30 years ago and used to be the center of agriculture and trade. It is the home of world class companies for science and technology, houses a 5-star resort, and has shown 150% growth in the last fifteen years. The town's population is just under 45,000 residents, with about 30% of residents being over the age of 60. Demographically, the population is 66% White, 24% Latinx, 3% Black, and 4% Asian. The average household income is $81,992, with 17% having earned a high school diploma, 30% having earned bachelors' degrees, and 15% having earned graduate degrees.

HMS, in grades 7-8, has about 800 attendees. The racial breakdown of the student population is 54% White, 37% Latinx, 3% two or more races, 3% Black, 2% Asian, 1% American Indian/Alaska Native, <1% Hawaiian Native/Pacific Islander. Forty-three percent of the students qualify for free and reduced lunch. The teacher to student ratio is 21:1, the counselor to student ratio 434:1, and the percentage of teachers with three or more years' experience is 93%. The percent proficiency for state standardized tests include 66% science, 76% geometry, 75% algebra 1, 29% math, and 33% English.

HMS is one of the two comprehensive middle schools of this district. There are six K-6 elementary schools that feed into this middle school. This middle school then in turn feeds into one of the comprehensive high schools. According to information found on the teachers' webpage, the teachers are organized into interdisciplinary teams so that they can work collaboratively with the students they serve. The school provides a diverse educational experience for the twenty-first century by incorporating student Chromebooks and collaborative modern furniture into comprehensive, relevant, and rigorous instruction. HMS has 35 teachers, 25 support staff, and an average class size of

33 students. The average daily attendance is 91.6% and per pupil spending is roughly $4,500 per student per year.

A Chromebook is a different generation of a laptop. Instead of Windows 10 or Macintosh operating systems, Chromebooks run Google's Chrome operating systems. These machines are designed to be used primarily while connected to the Internet, with most applications and documents available for cloud-based delivery. Each student at HMS has been assigned a Chromebook for the school year and students can take them home.

HMS also believes that children need many avenues for learning and those outside of the classroom are equally important. They offer honors-level classes in English, math, science, social studies, and a challenging elective course for gifted education (GEM) students. Eighth graders can earn high school credits in both math and Spanish.

Their sports program is comprehensive and provides students the opportunity to participate in several sports each season. The school also offers an elective course in coding to students who seek an additional challenge and who want to prepare for a high school AP course in computer science. The school offers art, band, ceramics, drama, guitar, and orchestra and has advanced classes in art, ceramics, and drama for 8th graders. Students have opportunities to perform on campus and in the community.

The school itself is nestled in a neighborhood and sits just off a busy suburban road. It is less than a mile away from its feeder high school and, upon entering campus, visitors are greeted by the beauty of the athletic fields, the clean campus, the decorative school banners and flags, the solar paneled covered parking, and the welcoming staff.

Math at HMS

An important lens for this study was mathematics. To understand the context fully in which the interviewees were discussing the communication and context of their children's math classes, the researcher gathered information about what constituted an advanced math class in this district and how a student was evaluated for placement in such classes.

A1 reported that with the recent changes in the state adopted curriculum about three years ago, there has not been a district-provided math resource until recently. The district introduced Eureka math as a foundational tool to support the teacher-created curriculum units. The math teachers at HMS have worked hard by grade level to ensure that there was consistency on the units of study, the sequence in which they are taught, and the manner by which learning is assessed. Data are a driving force in the district for math placement for students, and the feeder elementary schools work closely with the middle school staff to ensure that acceleration and remediation are provided for students based on their work ethic, their ability to comprehend math, and the success of their coursework in and out of the classroom.

The work ethic, math comprehension, and coursework success data are collected in conjunction with the placement testing at the end of a school year for the following school year. The receiving middle school works closely with the 6th grade teachers from the feeder elementary schools to ensure appropriate math placement. This process also occurs at lower grades to ensure that students who need enrichment in 5th and 6th grade are receiving the appropriate challenge in preparation for middle school.

There is a district level math coordinator who works with each individual school site. At each school site, there are two master math teachers who have a half-time teaching load that affords them the opportunity to co-teach with their colleagues, not only to mentor them, but also to provide additional math support to students in these classes. HMS will be moving toward this model next school year. T2 reported that she and T1 had been identified as the master math teachers and would fulfill this role at HMS.

In addition, the individual school sites (HMS included) also offer additional math support after school during tutoring sessions. Finally, because the school provides one-to-one Chromebooks for all students, teachers can individualize math lessons/units to provide support for students as needed. It also affords them the opportunity to offer flipped classroom tutorials at home and allows for students to utilize the Chromebook for additional resources or videos for assignment assistance.

To further understand day-to-day processes at the school site, this study considers and extracts from interview data. The data from the following groups are reviewed: site administration, math teachers, and parents of successful Latinx students.

Population Sample

Purposeful sampling is a technique widely used in qualitative research for the identification and selection of information-rich cases when the researcher has limited resources (Patton, 2002). This involves identifying and selecting individuals or groups of individuals that are especially knowledgeable about or experienced with a phenomenon of interest (Cresswell & Plano Clark, 2011). In addition to knowledge and experience, Bernard (2002) noted the importance of availability and willingness to participate and the ability to communicate experiences and opinions in an articulate, expressive, and reflective

manner. For this study, the administrators and the math teachers were purposefully selected as they were the group that could provide the best information for the research questions.

This study also utilized the snowball sampling technique for teachers to identify family members to interview. The snowball sampling technique is a recruitment tool in which the researcher asks research participants to identify other subjects to interview who have similar experience/interest/knowledge of the topic (Noy, 2008). Miles and Huberman (1994) described the purpose of snowball sampling to identify "cases of interest from people who know people who know what cases are information-rich" (p. 28). The study used snowball sampling by asking the teachers who were interviewed to identify parents that they thought would be willing to be interviewed. Once the teachers identified the parents, the researchers contacted the parents. In one instance, one of the parents brought along another parent who wanted to be interviewed.

Interview Recruitment

The purposeful sampling and snowball techniques were utilized to identify interviewees. Before data collection began, the researcher obtained permission from the Institutional Review Board of the University of Arizona as well as from the Office of the Assistant Superintendent in the CSD to ensure the protection of research participants. The principal of HMS was the first person interviewed. Interviews were audio-recorded and later transcribed. The researcher took brief field notes during the interviews to capture emotions or other information that was not apparent on the audio-recording.

Patton (2015) affirmed that qualitative research generally targets a small sample size that is purposely selected by the researcher to allow for investigation into a specific phenomenon in depth. Creswell (2014) supported this affirmation, stating that qualitative research, particularly phenomenological studies, should aim for a sample size ranging

from 3 to 10. The purposeful sample for this study was HMS site administration, 7th and 8th grade math teachers who taught or co-taught an accelerated or upper level math class, and Latinx family members who had students enrolled in an accelerated math class.

Data Collection

The researcher collected data using face-to-face recorded interviews, email communications, and the review of Cactus School District's and HMS's website materials.

Instrument

The researcher used an interview protocol that contained open-ended questions as a data collection instrument with administrators, teachers of accelerated math students, and Latinx family members facilitate support for advanced math. The interview protocol was developed based on the desire to see how the teachers, administrators, and parents' communication styles and action steps helped to facilitate subtle parent involvement to increase math achievement. There was an interview protocol for each of the three groups. The interview protocol was examined for sentence structure in the questions, ease of understanding, and the ability to obtain an appropriate answer based upon the research questions. These were reviewed independently by both an educational leadership professor and a doctoral student. See Appendix A for interview protocol.

Interviews

The researcher secured district level approval for this study and was given permission to contact the school principal upon receiving this approval. The researcher communicated with the building principal via email to set up the initial meeting. The principal agreed to be interviewed during that period as well. During the principal's interview, he asked the researcher to send him an email detailing the study so that he

could reach out to the teachers on behalf of the researcher to help with math teacher recruitment. The researcher sent the principal the Recruitment: Email Script (Appendix B) with some additional details. The principal then sent the email to six math teachers and copied the researcher on the email. He also included the participant consent form (Appendix C).

Two math teachers immediately contacted the researcher via email and interviews were scheduled. The principal told the researcher that she should ask the teachers for suggestions on what parents could be interviewed. At the end of the principal interview, the principal walked the researcher to the associate principal's office. An informal conversation then occurred about the study and the associate principal gave the researcher his card to set up an interview later. Two additional teachers agreed to be interviewed after the researcher sent a reminder email for another call if they wanted to be part of the interview process. The researcher indicated in the email that it was a positive experience with their colleagues. After interviewing the four teachers, two of the teachers agreed to reach out to a handful of parents who they thought might be interested in being interviewed for the study. Once the teachers reached out to the parents and stated that the parents authorized contact by the researcher, the researcher reached out to the parents via email with the Recruitment: Email Script (Appendix B).

The researcher conducted a total of twelve interviews at HMS. The interviews occurred over six weeks, all ranging from 30-45 minutes in length. At the beginning of each interview, the participants were given a participant consent form (Appendix C) and were asked to read it over and inform the researcher if they had any questions. This form stated the purpose of the study, duration, procedures, possible risks throughout the study,

and it gave the researcher's contact information. The participants were asked to sign the consent form if they agreed to its contents. The researcher kept the signed copy of the form and gave each participant a copy of the form to keep for their records.

The first interview was scheduled with the principal, A1, via email communication with him. The interview for A2 was scheduled via text messaging with him after a face-to-face conversation on the day of A1's interview. Interview participants T1, T2, T3, and T4 were pre-scheduled via email after correspondence was sent to them from A1 that had been drafted by the researcher. Parents P1, P2, P3, and P4 were suggested by T3 and the interviews were scheduled via email after T3 contacted them for permission for the researcher to contact them. Parents P5, P6, and P7 were suggested by T1 and the interviews were scheduled via email after T1 contacted them for permission for the researcher to contact them. The researcher had a phone conversation with DA1 about the math program in the district and how it was organized at the school level. To fully understand the context in which the interviewees were discussing the communication and context of the math class that their child was in, the researcher gathered information about what constituted an advanced math class in this district and how a student was evaluated and placed in this class. Following is a summary of the information gathered from the assistant superintendent about district mathematics:

> In the Cactus School District, the mathematics curriculum and instruction is overseen by an Assistant Superintendent. She is advised by the Professional Practice Advisory Committee who makes recommendations for changes to practice and or resources. In addition, the school district has a Curriculum and Assessment Coordinator who oversees the mathematics curricular and

assessments. Finally, two math specialists (one K-8 and one 7-12) support the implementation of adopted math curriculum, instructional materials, and assessments.

The researcher met with the principal in his office for over an hour discussing the study and officially interviewing him. A1 was the building principal and was finishing his fourth year at HMS and his 18th year as a building administrator. He had been both an associate principal and a principal. He had a master's degree and had served on district level secondary math committees in the past. During the year of the study, he took on a different role that included being part of a professional practices committee that studied and supported math as one of its responsibilities. While he worked with the head of the math departments for master scheduling purposes, he did not directly supervise the math teachers at his site.

The researcher met with A2 a few weeks after A1 to accommodate his schedule and the meeting was held in his office for about a half hour. A2 was the associate principal and was a five-year veteran of administration. He was finishing his third year as an associate principal at this site. Prior to working at this middle school, he was an associate principal at a feeder elementary school. He noted that it was his 13th year in the district. Prior to administration, he spent his time as a math teacher. Outside of supervising math on campus, he is also part of the district level math acceleration committee. This group had been working to ensure that accelerated math students were receiving the appropriate challenge from 5th grade forward, so that they would not have to wait until middle school. This would then allow them to take the appropriate upper level classes in high school and perhaps engage in dual enrollment for college credit.

The researcher met with T1 in her classroom during her planning hour in the course of a school day. T1 had been teaching math for 20 years, 18 of which had been at this middle school. She had a BA in elementary education with an emphasis on math. At the time of the study, she taught an enriched 7th grade class and a few co-taught math classes with higher numbers of special education students. T1 referred P5, P6, and P7 to be interviewed.

The researcher met with T2 in her classroom a few weeks after she met with T1. T1 introduced the researcher to T2 before her interview as their classrooms were right next door to teach to each other. The interview with T2 lasted about a half an hour and after the interview, T2 invited the researcher to stay in her classroom to observe the classroom while the students were there. T2 had been teaching math and special education for 18 years, 11 of which had been in this school district, and 6 of those 11 years had been at HMS. At the time of the study, she co-taught with T1 and taught resource math classes for special education students. She did not respond to the researcher's original email to be interviewed. She did not think she could add anything to the conversation because many of her students did not perform well academically but who wanted to talk with the researcher because she had so much interaction with parents at individualized education plans (IEP) meetings and she co-taught with T1 each day. She had a master's degree.

The researcher met with T3 in his classroom during his plan time a day after she interviewed T2. T3 was finishing his 11th year as a math teacher. All his math teaching had been at this school site and he had taught both 7th and 8th grade math, algebra, geometry, and he co-taught 8th grade. During the year of the study, he was teaching all 8th

grade students, both advanced math and algebra. He had a master's degree and had referred P1, P2, P3, and P4 for interviewing.

The researcher met with T4 in his classroom a few weeks after the other three teachers. Due to the nature of his complicated schedule with no plan time, a son who played various sports, and a personal residence far from the school site, the researcher interviewed T4 on a Friday afternoon after school. T4 needed to grade papers during the interview to make up some time. T4 was finishing his 29th year of teaching math, with 11 of them at this middle school. At the time, he was teaching 8th grade math (pre-algebra) and had some co-taught classes, or ones that included an additional teacher in the classroom with him and students of varying ability levels and IEPs. He, like T2, did not originally reach out to the researcher because he did not teach advanced students this year. However, after the final call for teachers to interview from the researcher, he decided to interview, because he wanted to offer his experiences. He had a bachelor's degree.

The researcher met with P1 in a fast food restaurant near the school site as she needed to be there to sell tickets for her son's sport event. There was a bit of noise in the location, but it was possible to find a quiet corner for the interview, which lasted about a half hour. P1 was a Caucasian mother with a daughter in the 8th grade algebra. She had a master's degree, and this was her third child to attend this middle school and to have T3 for math. From the moment we started speaking, it was clear that she was extremely pleased with the school, the curriculum, the staff, and the support and challenge that her daughter was receiving that school year. She also made it clear that her daughter's math teacher had developed a relationship with her family over the years. There was never of a

mention of "ethnicity" or the scope of Latinx parent involvement at the secondary level when the researcher proceeded with the interview questions or when the interviewee signed the consent document. It was verified with district data that all members of P1's family identified as Caucasian.

The researcher met with P2 in a local coffee shop near the school site and the interview lasted about a half hour. P2 was a Caucasian mother with a son in the 8th grade algebra. She had a master's degree, and this was her second child to attend this middle school and to have T3 for math. She had four children in this district—one in high school and two in elementary school. There was never of a mention of "ethnicity" when the researcher proceeded with the interview questions or the interviewee signed the consent document that spoke about the scope of Latinx parent involvement at the secondary level. It was verified with district data that all members of P2's family identified as Caucasian.

The researcher met with P3 in her classroom after a school day, and the interview lasted about 45 minutes. P3 was a Latinx mother with a 7th grade daughter in the algebra class. She had a bachelor's degree in marketing and business management, and this was her third and youngest child to attend the middle school. P3's daughter was also the third student to have T3 as her math teacher. She felt supported by the teacher in that he did a good job keeping her informed of resources to support the curriculum and supplemental opportunities for enrichment outside of the classroom. She felt that this added support might be given to her daughter because she was a 7th grader in a 9th grade class. Also, of note, this mother was a teacher in one of the elementary schools that feeds into the research site.

The researcher met with P4 in her classroom after a school day, and the interview lasted about 45 minutes. The interview occurred a day after the interview with P3, and it should be noted that P3's and P4's work classrooms were next to each other. P4 was a Latinx mother with an 8th grade daughter who was taking an online math class in geometry with a home base for math with T3 during an algebra class. She had a bachelor's degree in English and writing, and this was her first and only child attending this middle school. Overall, she was happy with the logistical communications that come from the school and administration but felt frustrated that her daughter did not have a regular teacher for math. She did highlight the personalized academic attention that she has received from the principal.

The researcher met with P5 and P6 at a local coffee shop near the school site early in the morning before their work day started. P5 and P6 were a Latinx father and mother with a son who was in 7th grade accelerated math. This was their first year at the middle school and T1 was their son's teacher. The researcher communicated with the father to set up the interview and was not aware originally that the mother was going to be part of the interview. She opted to be part of it. Both parents added to the conversation as they wished. The father had some college and the mother had a high school diploma.

The researcher met with P7 in the principal's office at her workplace. P7 was an associate principal at one of the elementary schools in the district. The school at which she worked does not feed into the middle school research site. The interview lasted about 45 minutes. P7 was a Latinx mother with a son in the 7th grade accelerated math class. This was her first child in the middle school and T1 was her son's teacher. She had a total of two children in the district. She had a master's degree. She spoke highly of her son's

math experience at the school and enjoyed talking about the journey of academic independence that has engaged her son. She also mentioned the importance of the transition from elementary school to middle school and how happy she was about how the middle school had taken such loving care of her son. A bonus for the researcher was to hear a bit of her perspective as an administrator working with the upper elementary grades and her and her teachers' experiences with math placement and the transition to middle school.

Document Review

According to Creswell (2014), the researcher can collect public or private documents during the research process. In this study, the researcher collected a paper copy of the math placement rubric that was used at the elementary feeder schools to place students in the appropriate math class in middle school. In addition, the researcher reviewed the websites of both the school and the district and reviewed information about the town in which the school district was located. These documents were public, and no additional permission was required to obtain information. The researcher also obtained HMS's enrollment, diversity statistics, public spending, and various other school details via email correspondence with DA1 and DA2. Because school statistics were requested in the initial application to do research in the Cactus School District, no additional permission was required to obtain this information.

Triangulation

Triangulation assists in gaining a better understanding of the problem; it increases confidence in the research data and may reveal exclusive outcomes (Creswell, 2007). Patton (2002) explained that triangulation occurs when numerous methods of data

collection are used in an investigation to support the research and to enhance the credibility of the study. He suggested that two major purposes of triangulation are to increase the certainty of research statistics and to disclose unique findings.

To increase the validity of this study, the researcher utilized several sources of data including personal email communications, school testing scores, census data, online websites, and face-to-face interviews. Cross-verifying these data sources allowed the researcher to identify themes among the data and to discover a clear picture of school communication, to identify how home-based parent involvement was encouraged at the school level, and to learn how Latinx families were involved in advanced math achievement in the home. Cross-verification also allowed the researcher to learn about the math curriculum and planning at both the district and the site level.

Ethical Considerations

The ethical protection of the participants was an important part of each phase of the research process. Creswell articulated that it is the responsibility of the researcher to protect the interview participants' rights, needs, requests, and standards (2014). When interviewees were contacted via email to set up the interview, the researcher attached a copy of the participant consent form for their review. The form included an explanation of the study, a description of the anonymity precautions that were taken, a request for permission to audiotape the interview, and contact information on how to terminate participation in the study at any time. Participants' agreements and signatures were obtained before any interviews were taken. All information pertaining to the interviews was kept anonymous throughout the study. Names were not used on audio-recordings, in interview transcripts, in file names, or in the study write up. All participants were referred to with codes—A1, T1, P1, and so forth—to protect participant privacy. The researcher

kept all interview participants free from physical, mental, and emotional harm throughout the study while following all university, state, and national regulations for conducting research.

Summary

This study explored how middle school administrators and middle school math teachers encourage and support home-based parent involvement in advanced math. This study helped to fill a gap in the literature of secondary parent involvement when minority families are the subject of consideration. Chapter 3 introduced the research questions, research design, and methodology for this qualitative case study. It explained the significance of the study, the researcher's position on parent involvement, and the study's limitations. The selected research setting and population sample were discussed, followed by a detailed description of the collection of data, including interview recruitment, the instrument used, interviews, and document review. Chapter 3 ended with a discussion of triangulation in this study and of ethical considerations. Chapter 4 presents the results and findings of this case study.

Chapter 4. Findings

Despite being the fastest growing student group in the United States public school population of about 17.5 million, Latinx students still underperform academically when compared to their White and Asian counterparts (U.S. Census, 2010). This is especially true for math (Layton, 2014). More specifically, Latinx students continue to be underrepresented in advanced math classes. According to the Department of Education's (2003b) report, *Status and Trends in Hispanic Education*, 26% of Latinx students attend advanced math classes, with 59% of Latinx students completing middle level math classes (Layton, 2014). This equates to 12 of every 1,000 Latinx students taking AP Calculus in high school. Despite these numbers, there is some promising data that show a significant jump in state standardized testing math scores from 2003-2013 for Latinx students (Layton, 2014)

The increased math achievement of Latinx students over the last decade could be attributed to multiple factors, such as aligning standards and making math more relatable (Holloway, 2004); looking at student academic backgrounds and readiness and focusing on a level of support for math in the home (Sheldon & Epstein, 2005); discovering the importance of the subtle aspects of parent involvement like setting expectations, communication, and mutual respect (Jeynes, 2010); and understanding the Latinx parenting style and its congruities with subtle forms of parent involvement (Jeynes, 2017). The current research has increased the schools' understanding of the importance of parent involvement. Until recently, however, there was little information on parent involvement or on how Latinx families defined parent involvement (Zarate, 2007). Additionally, schools tended to lack organizational goals and objectives for parent involvement.

Zarate (2007) found that Latinx parents wanted to understand how to help their children with their studies, but that they were more concerned about how to help their child develop holistically (2007). Jeynes' (2017) work noted that the concept of parents helping with homework is becoming an "old idea," as significant academic improvement has not been shown with this practice (2017). In its place is a home environment that encourages learning, sets high expectations, has adults who speak positively about school, provides academic learning opportunities, and is open to more interactive styles of homework. In addition, is a school environment providing school work that encourages a more practical approach to subjects, especially math. To support this, Woolley, Kol, and Bowen (2009) found, "For Latino middle school students, social variables such as parental support, parent education monitoring, friend support, friends' school behavior, and teacher support were directly or indirectly related to school outcomes, including behavior, satisfaction with school, and grades" (p. 43).

Even though there exists recent literature on how to connect with Latinx families and encourage more parent involvement at school and in the home, there is still a dearth of literature on how the parents of high-achieving Latinx students in math are supporting their children and fostering this learning. Most recently, Jeynes (2017) proposed the need for further research on the subtle or home-based involvement strategies of Latinx families. As stated earlier, Jeynes postulated that this type of parent involvement is congruous with Latinx family values and parenting styles.

This researcher used a qualitative descriptive case study to collect data in a midsized suburban southwest middle school using a snowball sample of two administrators, four math teachers, and seven parents about their involvement in either

supporting or facilitating parent involvement with advanced mathematics (one grade level above or algebra I) and Latinx students. The researcher also reviewed printed materials used for student placement into advanced math classes, student demographics and email correspondence sent from administrators to the parents. The data from both the interviews and the review of the printed materials were used to answer the three research questions (RQs; repeated here for the convenience of the reader):

RQ1: How do middle school administrators encourage and support home-based Latinx parent involvement in advanced mathematics?

RQ2: How do middle school math teachers encourage and support home-based Latinx parent involvement in advanced mathematics?

RQ3: How do Latinx family members facilitate support for advanced mathematics?

Context

HMS is a midsized suburban school in the southwest and is one of two comprehensive middle schools in the district. The school student demographic breakdown includes 53% White, 38% Latinx, 2% Black, and 2% Asian. It is a 7th and 8th grade middle school of about 800 students. The thirty-five teachers of the school are organized into interdisciplinary teams so that they can work collaboratively on behalf of the students they serve. Their school provides a diverse educational experience for the twenty-first century by incorporating student Chromebooks (laptop like web-based technology) and collaborative modern furniture, into comprehensive, relevant, and rigorous instruction.

Interview Participants

This study utilized the purposeful sampling technique to select the administrators and math teachers. Purposeful sampling is a technique widely used in qualitative research for the identification and selection of information-rich cases for the most effective use of limited resources (Patton, 2002). This involves identifying and selecting individuals or groups of individuals that are especially knowledgeable about or experienced with a phenomenon of interest (Cresswell & Plano Clark, 2011). In addition to knowledge and experience, Bernard (2002) noted the importance of availability and willingness to participate, and the ability to communicate experiences and opinions in an articulate, expressive, and reflective manner.

This study also utilized the snowball sampling technique for teachers to identify family members to interview. The snowball sampling technique is a recruitment tool in which the researcher asks research participants to identify other subjects to interview who have similar experience/interest/knowledge of the topic (Noy, 2008). Miles and Huberman (1994) described the purpose of snowball sampling to identify "cases of interest from people who know people who know what cases are information-rich" (p. 28). Table 1 reviews the details of the interview participant demographics including participant name, gender, ethnicity, education level, years at HMS, and classes taught or taken.

Table 1

Interview Participant Demographics

Participant	Gender	Ethnicity	Education Level	Years @ HMS	Class taught or taken
DA1	Female	Caucasian	Master's	n/a	n/a
DA2	Female	Caucasian	Doctorate	n/a	n/a
A1	Male	Caucasian	Master's	4	n/a
A2	Male	Latinx	Master's	3	Taught high school math/supervises math teachers
T1 (identified P5, P6, and P7)	Female	Caucasian	Bachelor's	18	Accelerated** 7th and 8th grade combo math (7th graders)
T2	Female	Caucasian	Master's	6	Co-teaches with T1 in 7th and 8th accelerated combo math and teaches a special education class
T3 (identified P1, P2, P3, and P4)	Male	Caucasian	Master's	11	Algebra (supervisor of Geometry student) – mostly 8th grade with a few 7th graders
T4	Male	Caucasian	Bachelor's	11	Pre-algebra 8th grade
P1	Female	Caucasian	Master's	3rd child	Algebra in 8th grade
P2	Female	Caucasian	Master's	2nd child	Algebra in 8th grade
P3	Female	Latinx	Bachelor's	3rd child	Geometry online in 8th grade
P4	Female	Latinx	Bachelor's	1st child	7th and 8th accelerated combo math in 7th grade
P5 and P6* (husband and wife)	Male Female	Latinx Latinx	College High School	1st child	7th and 8th accelerated combo math in 7th grade
P7	Female	Latinx	Master's	1st child	7th and 8th accelerated combo math in 7th grade

*P6 supplemented what P5 said and did not choose to participate in a full separate interview.

**Accelerated math is defined as math taught at a faster pace with extended learning. Curriculum is abbreviated, and students will learn both 7th and 8th grade math standards in one school year

DA1 was the assistant superintendent of the school district finishing her third year in this role. She had been in the school district for fifteen years as a high school teacher and as an assistant principal and principal of one of the middle schools. She was at the time of the study overseeing the secondary schools for the district and the math curriculum for the school district. She provided clarification of the hierarchy of the math structure in the school district after the researcher's interview with A1.

A1 was the building principal and was finishing his fourth year at HMS and his 18th year as a building administrator. He had been both an associate principal and a principal. He held a master's degree and had served on district level secondary math committees in the past. During the study year, he took on a different role, which included being part of a professional practices committee that studied and supported math as one of its responsibilities. While he worked with the head of the math departments for master scheduling purposes, he did not directly supervise the math teachers at his site.

A2 was the associate principal and was a five-year veteran of administration. He was finishing his third year as an associate principal at this site. Prior to working at this middle school, he was an associate principal at a feeder elementary school. He noted that it was his 13th year in the district. Prior to being in administration, he was a math teacher. Outside of supervising math on campus, he was also part of the district level math acceleration committee. That group had been working to ensure that accelerated math students were receiving the appropriate challenge from 5th grade forward, so that they would not have to wait until middle school. This would then allow them to take the appropriate upper level classes in high school and perhaps engage in dual enrollment for college credit.

T1 taught math for 20 years, 18 of which had been at this middle school. She had a BA in elementary education with an emphasis on math. At the time, she taught an enriched 7th grade class and a few co-taught math classes. The co-taught math classes include regular education students and special education students (up to one-third of the class size). T1 referred P5, P6, and P7 to be interviewed.

T2 taught math and special education for 18 years, 11 of which were in this school district, and 6 of those 11 years had been at HMS. She was co-teaching with T1 and taught resource math classes for special education students. She did not respond to the researcher's original email because she did not think she could add anything to the conversation. Even though many of her students did not perform well academically or weren't in higher level math classes, T2 wanted to talk with the researcher because she had so much interaction with parents at IEP meetings and she co-taught with T1 each day. She had a master's degree. She did not refer any parents to be interviewed.

T3 was finishing his 11th year as a math teacher. All his math teaching had been at this school site and he had taught both 7th and 8th grade math, algebra, geometry, and had co-taught 8th grade. During the study year, he was teaching all 8th grade students and both advanced math and algebra. He had a master's degree and had referred P1, P2, P3, and P4 for interviewing.

T4 was finishing his 29th year of teaching math, with 11 of them at this middle school. He was, at the time, teaching 8th grade math (pre-algebra) and had some co-taught classes or classes that included an additional teacher in the classroom with him for students with varying ability levels and IEPs. He, like T2, did not originally reach out to the researcher, because he did not teach advanced students this year. But after the final

call from the researcher for teachers to interview, he decided to interview, because he wanted to offer his experiences. He held a bachelor's degree. He did not refer any parents to be interviewed.

P1 was a Caucasian mother with a daughter in the 8th grade algebra class. She had a master's degree, and this was her third child to attend the middle school and to have T3 for math. From the moment we started speaking, it was clear that she was extremely pleased with the school, the curriculum, the staff, the support, and the challenges that her daughter was receiving that school year. She also made it clear that her daughter's math teacher had developed a relationship with her family over the years. There was never of a mention of "ethnicity" when the researcher proceeded with the interview questions or the interviewee signed the consent document that spoke about the scope of Latinx parent involvement at the secondary level. It was verified with district data that all members of P1's family identified as Caucasian.

P2 was a Caucasian mother with a son in the 8th grade algebra class. She had a master's degree, and this was her second child to attend this middle school and to have T3 for math. She had four total children in this district, one in high school, and two in elementary school, and one in T3's math class. There was never of a mention of "ethnicity" when the researcher proceeded with the interview questions or the interviewee signed the consent document that spoke about the scope of Latinx parent involvement at the secondary level. It was verified with district data that all members of P2's family identified as Caucasian.

P3 was a Latinx mother with a 7th grade daughter in the algebra class. She had a bachelor's degree in marketing and business management, and this was her third and

youngest child to attend the middle school. She was also the third student to have T3 as a math teacher. She felt supported by the teacher in that he does an excellent job keeping her informed of resources to support the curriculum and supplemental opportunities for enrichment outside of the classroom. She felt that this added support might be given to her daughter because she was a 7th grader in a 9th grade class. Also, of note, this mother was also a teacher in one of the elementary schools that fed into the research site.

P4 was a Latinx mother with an 8th grade daughter who was taking an online math class in geometry with a home base for math with T3 during an algebra class. She had a bachelor's degree in English and writing and this was her first and only child to attend middle school. Overall, she was happy with the logistical communication that came from the school and administration but felt frustrated that her daughter did not have a regular teacher for math. She did highlight the personalized academic attention that she had received from the principal.

P5 and P6 are a Latinx father and mother with a son who in 7th grade accelerated math. This was their first year at the middle school and T1 was their son's teacher. The researcher communicated with the father to set up the interview and was not aware that the mother was going to be part of the interview originally. She opted to be part of it. Both parents added to the conversation as they saw fit. The father had some college and the mother has a high school diploma.

P7 was a Latinx mother with a son in the 7th grade accelerated math class. This was her first child in the middle school and T1 was her son's teacher. She had a total of two children in the district. She held a master's degree and was an administrator employed by the district. She spoke highly of her son's math experience at the school and

enjoyed talking about the journey of academic independence that her son had traveled. She also mentioned the importance of the transition from elementary school to middle school and how happy she was about how the middle school has taken such loving care of her son. A bonus for the researcher was to hear a bit of her perspective as an administrator working with the upper elementary grades and their experiences with math placement and the transition to middle school. Of note also, the school in which this parent worked did not feed into the middle school under study.

Presentation of Findings

Site Administrators and Their Views on Math

Prior to the last few school years, the teachers at the school site expressed high levels of frustration with many of the changes to the math curriculum at the state level and the funding-limited resources at the site level. These limited resources, for example, included not having an adopted math textbook.

This situation improved recently, when, as A1 described, "As a district, we are using *Eureka Math* as a foundational tool for supporting our teacher generated curricular units. There is much more teacher buy-in because there are now units of study." A2 went on to say, "The teachers have a strong buy-in to the curriculum as they have worked to put together the pacing maps and have built the summative assessments." Not only have teachers in their work in their professional learning communities been able to develop the curriculum that they are teaching to their students, they are now able receive data on incoming students prior to having them in their classrooms in the fall. This has been the result of the work of the district level partnership and their elementary school feeder school partners.

As A1 described,

> The Professional Practices Advisory Committee for the school district developed a document for 6th grade teachers to communicate the areas of concern for the incoming struggling math students 7th grade students. Teachers define a struggling student as one who has been approaching the standards for two or more grading periods. They look at student work ethic, their ability to comprehend math, and the success of their coursework in and out of the classroom. This way we have foundational knowledge about them when they come to our school.

The 7th and 8th grade teachers could then use data from the 5th and 6th grade teachers to appropriate place and develop level-appropriate curricular support materials for incoming students at HMS. While these data are useful for helping to set students up for success, there is still a high level of anxiety for the middle school teachers, because unidentified curricular gaps still exist for many of these students. A2 helped to explain by saying,

> The teachers can become frustrated with students when they do not possess a strong basic skills foundation. However, the benefit of the teachers' plc is that the newer teachers can learn from the more veteran teachers on how to incorporate lessons to help close the gap of skills within the given classes.

Furthermore, in addition, to ensuring that the teachers were receiving the appropriate curriculum support at the middle school level, the district was trying to ensure that the elementary school students who needed additional curricular support were being appropriately challenged and accelerated at the elementary level. As A2 stated, "I'm on the district math acceleration committee and we are working to ensure that by 5th grade, students are receiving the type of challenge that they need so that they can be on

the correct math path before middle school and in turn have opportunities for different calculus classes in high school."

Site Administration and Their View on Parent Communication

Both administrators, A1 and A2, reported that there were open lines of communication with parents on the campus. Communication came in various forms, including both electronic communication and face-to-face conversations. Parents were welcome on campus and were not afraid to express their opinions to the site administrators. A1 stated, "I'll sometimes get emails or parents coming up to me when they see me on campus, and they'll complement particular teachers and how those teachers helped their child to better understand math and that's happened several times not just this year but in previous years."

The bulk of the ongoing communication that families received from the administration came weekly in the form of an email and included general school information and not specific details about individual subject content. For example, parents were made aware of events going on around campus or about community offerings more than they were about specific happenings in individual classrooms. Administration reserves classroom-specific communications for the teachers. A1 and A2 offered the following clarification about the content of their communication to families:

> Administration communicates weekly via an email to all of our parents. In this communication, part of our focus is on the soft skills or those of organization, time management, and prioritization of tasks. As far as subject-specific communication, we leave that up to the individual teachers. We do send out a weekly email communication to families, but if it was important, the district has the ability to send out a recorded message phone call as well.

According to A1 and A2, parents were pleased overall with the amount of information received and the frequency of the communication. However, they at times report frustration when they do not hear directly from their child's teachers. Part of this frustration arose from the transition from elementary to middle school:

> Parents often get frustrated when they do not hear directly from their child's teacher, but what they do not realize is that their child's teacher could have in upward of 150 students on a daily basis and don't always make daily contact with every student. I would like to encourage parents to make the initial contact with teachers and to remember that their child is also becoming more independent and autonomous and will at times be resentful toward their parents for reaching out to the teacher.

Where communication about math was concerned, A2 made sure that he communicated clearly and openly with the families about his math teaching background. Because he worked so closely with the math teachers and their PLC, he was keenly aware of the teachers' communication style and the information that was being communicated with the families, so he was able to supplement that by offering support. A2 confirmed this by stating,

> Because of my math background, oftentimes parents will simply reach out to me and I will offer one on one tutoring in my office, after-school tutoring, or help guide the parents to the online resources that the teachers communicate with me in their PLC or on the emails that I am copied on to parents.

A2 was happy to provide additional math support for teachers, parents, and students, especial during with the curriculum, assessment, and planning transitions that has been occurring in math. He continued,

> Parents feel intimidated that the very math that they had in high school for two years is now being taught in middle school and it is being taught in a different way. The more we talk to and encourage the parents to be patient and to continue to find online resources, the more confident they will feel to help their child with the math. They might be frustrated, but their children see them reaching out for help and trying to understand it.

With the changes to the math curriculum that have been made in recent years, the school district and the school site has provided the teachers with much common planning time through their site PLC and with curriculum support materials. The following section discusses the teachers' views on math and parent communication from their perspective as math teachers.

Math Teachers and Their View on Math

The math teachers spoke highly of their PLC and the fact that the more experienced teachers and the newer teachers could share instructional strategies and help each other grow professionally. They were also pleased with the recent addition of the formal Eureka math curriculum and the fact that they had autonomy over the creation of their assessment instruments. In addition, the math teachers at HMS felt fortunate that their evaluator (A2) was a former high school math teacher and knew in depth about the efforts that go into implementing a constantly changing math curriculum. The teachers said that A2 not only attended our PLC meetings, but they also planned creatively for additional support for the teachers. They state,

> Administration is supportive of our math program. In fact, next year, we are going to start an intervention program with two math teachers, each of whom will teach for half of the day and the other half of the day will work to support other math teachers to either pull students out for additional support or push in and offer the teacher additional support as needed based on student data.

T4 appreciatively observed, "My evaluator is a math guy and he allow me to use the curricular resources that work best for me and my teaching style, but most of for the students that I teach." With the support of their administration, the teachers at this site focused on their students, which for them was most important. The teachers have high expectations for math success for all students. T3 claimed, "I expect all of my students to try and I don't care how good or bad they are at math, they have to try. I teach them that getting the concept is way more than getting the procedure and that they need to pay attention to the pattern of solving the problem." All the interviewed teachers continued to emphasize that a productive struggle is all right. They emphasized to their students that it is part of the learning process not always to understand a math problem the first time and that it is the process of solving such problem that matters most.

T1 offered, "I expect them to not give up. I don't expect perfection, but I do expect them to continue to try. Somebody has told them that it is okay not to be a math person." T1 and her colleagues fought the battle that some of their students, even some of their best academic students, have been told that they are not math people and that it was okay not to be good at math. Unfortunately, as shown in the next section, some of these sentiments are communicated to their students by the students' own families. The teachers at this middle school had been working to change this dialogue.

Math Teachers and Their View on Parent Communication

The site administration communicated weekly via an email to families and left subject- specific communication to the classroom teachers. The math teachers at this school site took a varied approach to the frequency and type of communication that they sent out to their students' families. T1 said,

> Parents use the online grade book to check grades and are encouraged to email with questions. I do not send out a weekly email, to promote student accountability. On a monthly average, I'd say I communicate with about 10 parents (she did not state gender or ethnicity of students) a month (out of about 150 students)."

She clarified that much of the communication with the 10 parents was initiated by the parents themselves and was usually about an assignment or a grade. She mentioned that at times the communication would go back and forth a few times, but she did not indicate any other topics of discussion other than grades and clarifying math problems.

Part of this parent communication could also include a specific nightly email about a given homework assignment and might look a little like this, according to T1:

> Parents will also email me in the evening with a question through the Google account which I do check. I will not typically offer additional resources unless students ask for it, as most of them are not interested in seeking math videos out after school hours. I will, however, send an email out with a link for assistance if we are working on a particularly hard unit.

While T1's parent communication was mostly centered around homework help via email, T4's parent communication addresses teacher-initiated phone calls to highlight positive

social and academic behavior over the course of a quarter or the school year. T4 reflected,

> I will send out a parent email to the whole class if I need to communicate out about a test or something. I will, however, take the time at the end of the year (he did not mention that he did this throughout the year, only at the end of the year) to send out a handful of positive emails for each class to individual families to talk about how much success and joy their child brought to the class all year.

He further stated that the parents were overwhelmed with emotion and that they saw the change at home, but that it was nice to hear from someone outside of the family (i.e., their teacher) that their child was progressing so nicely.

While the email and phone feedback were limited for most of the teachers that were interviewed, when teachers had the opportunity to talk to parents at a meeting, they would give encouragement and support when they could. T2 addressed this situation in her co-teaching experiences:

> I will occasionally send out an email or a link, but I do not get much back in return from the parents. Because I am a co-teacher, my colleague will often be the recipient of the initial communication, as she is listed as their teacher of record. For my students who have IEPs, during their meetings, I will encourage their parents to ask them about the math skill that they are working on or to show their parents a problem on their Chromebook.

When T2 was face to face with a parent, she was able to show them how to access something on the Chromebook or practice the dialogue that the parent could have with their child at home when they were trying to access the math curriculum online. This is a

moment that T2 said that she looks forward to because too often she and her math colleagues meet negativity surrounding math success.

T4 shared much of his fellow math teachers' sentiments, saying, "It is so frustrating to hear my students say that they have always been bad at math and that their mom was bad at math and she says that I will be bad at math." Almost daily, even with building relationships, students seeing themselves do well in class, and classmates encouraging each other, despite teachers' best efforts, they still collectively hear much negative self-talk about students not being good at math. In fact, T1 claimed, "Many parents will walk into a meeting and have no problem telling me that they can't do math, but they would never say that they couldn't read." The teachers realized that much of the negative talk stemmed from parents being frustrated with themselves as math students and then vocalizing this frustration to their children. While well intended, in the teachers' opinions, these parents did not realize that they were harming their child's math self-esteem.

To help combat some of this type of negative dialogue, T2 and T1 worked together at back-to-school night to begin to change the conversation. T2 stated, "Please, please, please, don't tell your child that you were bad at math and that you are no good math because people think that that is ok to say." She claimed that the room became quiet, but the feedback was good, and it included that many parents did not mean to make matters worse. T1 further clarified, "I encourage parents to help, but not to a point of frustration. I tell them to have their child come to tutoring on Tuesdays and Thursdays at lunch."

While the math teachers and the administration were slowly starting to change the dialogue at this school site, there was still more than could be done. All the teachers interviewed shared similar ideas of finding ways to educate the parents outside of the school day. T2 said,

> I just wish we could do more as a school to get parents more involved, like a math night or a curriculum night. I try to incorporate life skills conversations all of the time with my students about gas, or recipes, or to make sure you are getting paid correctly at work.

T3 added, "Sometimes I wish we did more to offer education classes for parents." With the teachers continuing to find ways to reach all their students and parents, the next section shows some of the strategies that parents of successful Latinx math students were using in their home; the next section also presents data regarding the parents' perception of the school communication.

Parents and Their View on Math

Parents reported that they are feeling supported, communicated with, and they perceive that teachers as being supported by administration. P3 reflected on this, saying "He (T3) is amazing when it comes to sending out classes that the students could be taking, resources at the local university, and classes that my child could take outside of school to better his math skills." P5 and P6 claimed that the communication with T1 was not as frequent as they would have liked, but that she always communicated the important academic details and offered support resources for more difficult lessons. P7's view about math communication was that the communication to the teacher about math-related questions had to come from her son. She encouraged her son to email his teacher,

T1, if he had any questions. P7 indicated that T1 was good about responding to the emails from her son quickly and even at night for a tough homework assignment.

P1's response is like P3 and stated,

> The teacher (T3) provides websites and additional support for math in emails. I definitely perceive the principal as being supportive of the math program based upon the positive language and tone used when he addresses parent groups at the beginning of the school year and at academic assemblies.

P1 was appreciative of this academic support. P2 elaborated on the high level of academic support that her son experienced, but also spoke about her first-hand knowledge of how his teacher set high expectations for his students:

> I have gotten a phone call from the math teacher about a miscommunication and I know that he sets the expectations high for the students. My son is not afraid to ask questions either. My son was in the accelerated program in elementary school and they wanted to skip him ahead two grades and he decided it was not the best plan for him because he wanted a teacher with his class and not an online class. He has said that his 7th and 8th grade math teachers have helped him to fill in the gaps that were missing.

P3 further supported P2's statement of the teachers helping to fill in the gaps that were missing in the learning. P3 stated, "When I was a student, teachers didn't have all the tools that they have today to work with diverse types of students and learners. Now they have so many different strategies to help all different types of students." Information about the types of accelerated math classes that are offered at HMS will not be explored in this study.

When students needing accelerated math entered 7th grade, they had two options. Option 1 was taking an accelerated 7th/8th combo class, accomplishing the key math standards for both grade levels in one school year. Option 2 was taking algebra I. The accelerated 8th grade students usually took algebra I. If they completed algebra I in 7th grade, these students would move on to geometry. In school years where there were enough students needing to take geometry, a class section was available to those students. However, if there was a year with an insufficient number of students need to take geometry, those students would take geometry as an online class and would be monitored by another math teacher for a period, but they would work independently on the content.

Despite the continued communication and academic support, there still existed some gaps in the academic acceleration process as indicated by P4, whose daughter was taking an online high school math class that the middle school did not offer currently on campus. She stated:

> My daughter is scheduled as a TA for her math teacher from last year because she is taking a math class online and the school doesn't have a teacher for it. It has been a tough year for my daughter because I feel that she is cheating the system a bit by writing down answers and then taking the test. It has also been tough for her to find the time to meet with her former teacher to get additional help for the class.

Even though there existed a good relationship with the math teacher with whom her daughter was scheduled, as indicated, there was still a level of frustration, since there was no regular classroom teacher teaching the class. After speaking with P4, the researcher

learned the importance of the relationship of the teacher and the student and how important it was, even for the most accelerated math student.

Parents and Their View on Parent Communication from the School and the Math Teachers

Every parent spoke consistently about the frequency and thoroughness of the communication from both the administration and the math teachers. The school site offered multiple ways for parents to gather information. These included emails, a parent app, the school website, face-to-face communication, and phone calls. P4 summarized it best when she stated, "The last couple of years, the school has been great about communication, about meeting us when we needed it, stepping back when we don't need it." P1 discussed in greater detail the nature of the day-to-day communication from her perspective:

> I get a weekly email from administration, I can access the parent view app, and the school hosts a teacher meet and greet night at the beginning of the year. In addition, I also receive a syllabus from all the classes. I also get an email from my child's math teacher (T3) about twice per month. He communicates what is going on in the class or something that happened that might be funny about something that my daughter may have said.

P2 said, "[I] receive weekly communication from administration and receives communication from the teacher when needed, like a reminder about a project or I will receive an individual positive email if my child did something well." The teachers seemingly struck a balance between informing the parents about coordination and connecting with the parents when positive events happened in class. Throughout every conversation with each parent, the one thing that kept coming up was the importance of

relationship building. This was especially evident with P1, who had had three children attend this middle school and all three had had this math teacher. She continued, "We have become more a friend with the teacher over the last few years because my other children have had him too. He provides frequent communication, is respectful, and cares about the whole child."

Finally, P4 had a convincing argument for teacher-student relationships because her daughter felt the lack of a relationship with her online class. Although this class benefited her academically, she said,

> The proctor that is assigned to my daughter's online class only knows my daughter by deadlines and assignments. She doesn't know my daughter as a person because there is no relationship there. I probably communicate more with her teacher from last year than her online proctor teacher this year.

This study set out to explore how middle school administrators and middle school math teachers supported home-based parent involvement in advanced mathematics. In addition, it investigated Latinx family members who facilitated support for advanced mathematics. This section summarized the interviews of three groups—administrators, math teachers, and parents— and sought their thoughts concerning both math and parent communication. From the summary of these transcripts, various themes emerged and are discussed in the following sections.

Themes

Expectations

The themes of having and setting expectations was threaded throughout the interviews with administration, teachers, and parents. Administration had high expectations for both their teachers and their students. Teachers had high expectations for

their students and the parents of the students and the administration. Parents had high expectations for their child and for the district, the school, the administration, and the teachers. While much of their expectation was not communicated to their children/student, the interviewees spoke highly of their expectations having been met.

To understand whether the school's message regarding expectation was being conveyed to the parents, someone first reviewed parent data. The parent snowball sample were selected by the teachers. The parents were selected because they had students who were successful in advanced math. These parents had high expectations for their child as a math student. P2 claimed, "When it comes to homework or getting stuck on a problem at home, I encourage them to explain it to me how their teacher explained it to them and often when they do that, they can work out how to do the problem." The expectation in P2's home was that the child took responsibility for learning and thought aloud or talked through the problem before having the parent would show them what to do.

P6 felt so strongly about the concept of taking ownership that she believed that even if her son had an A+ in math, "He deserves greatness in a sense that not to limit himself and not to limit his expectations on his own. Just because he excels at that doesn't mean he shouldn't challenge himself to do that next thing." Parents P5 and P6, have instilled the beliefs of setting high expectations and taking ownership for actions into both of their children. P5 and P6 have done this from the time they were young and now that their son is in middle school, these beliefs are now ingrained into his core values and he is intrinsically motivated to be successful.

Thinking through a problem allows a learner to understand fully what they are learning, as P1 believed. She stated, "I want my daughter to understand what she is

learning and why it is important." P1 continued that since her daughter has taken this ownership of her learning, "She has had a great attitude change about math and now goes to the teacher for help and math has become one of her favorite subjects."

P4 and P7 are similar to P5 and P6. P4 said, "We are vocal about what we expect out of our children and they are perceptive of this. They are successful for themselves but also reach the expectations that we set for them." Conversations about success take place almost every day in our home. "Our children know that we want what is best for them." P7 not only stated the high expectations for her son, but also modeled each time he questioned whether he did a math problem correctly. Said P7,

> [I would] ask him if he double checked his steps and ask him different questions to try and figure out the answer himself so that he doesn't always think he has to ask someone for help…I will also ask him if he looked through his notes or to think about how the teacher taught it in class."

P7 also indicated that her son set high expectations for himself and would often ask himself how he could fix something or how he could make something better when he had gotten a C on a test.

Overall, as P1 so eloquently stated, "Everyone at the middle school has the child's best interest at heart. They build a great community and make the size of the school seem smaller by making the kids feel comfortable and welcome." This is important when relationships are considered at the middle school level. Having a strong school community builds social, emotional, and academic confidence for all learners. It is evident by the parent testimonies that school fosters an environment that promotes

academic independence. The academic independence that the parents yearn for seemed to be on point with the philosophy of the math teachers at the school site.

The one constant with every conversation with the parents was that communication at HMS was open and happened often. In the district, high learning expectations started at an early age. This consistency helped these parents provide the best possible learning environment at home. P1 summarized:

> I think when you set the standard form the beginning from the foundation in kindergarten, then once they get to junior high, everything is in place. They know what the rules are. They know what the expectations are, and it is not as hard now as it was. It was more feasibly intensive when they were younger. Once you lay that foundation, it just paves the way for when they get older, it makes it much easier at least in our house.

T2, like several parents, admonished students, "Improve from where you are. You may struggle but use your problem-solving skills and fight to figure it out....I encourage them to work on it themselves first, and then to try and talk to each other to see if they could learn from each other in how they do different problems." This type of learning is conducive to collaborative learning and productive struggle in the classroom. The classroom environment at the site, supports this type of learning and includes collaborative furniture that is set up for group work and presentations. A1 has witnessed many of the student learners teaching each other and working through the math concepts together in these classes. T1 concluded, "Learning happens when you struggle with something and your brain grapples with it. You can't quit the minute you hit a challenge or something.…It is about the process of learning how you got that, how you arrived at

that solution, and how you created that in your brain." This philosophy carries through to the way she managed her class, the way she set expectations, and the way she encouraged students to work collaboratively to solve problems. Much of this was good and most days this worked, but reality also sets in on some days, and, as T4 put it, "I tell the students all the time that I have high expectations for them and there are times when I will simply tell them that I am worried about them and their success. Some of them need a wakeup call or a pep talk." The relationships that the math teachers had with their students allowed them to give such pep talks. So, how did the classrooms become this strong? It is helpful to consider the perspective of the administration and its expectations.

The strong expectations at this school site started with a strong administration that led by example and that made its expectations clear. The administrators are also active members of the teacher PLCs. A1 summarizes his thoughts on his teachers by saying,

> In addition to content specific expectations, my expectations for all classrooms is that the teacher is a creating a classroom that is focused on building, developing, maintaining, caring, respectful, nurturing relationships with kids as their priority. Teachers should also focus on a language-based approached so that students are versed in math and therefore, successful in the subject.

A1 started his interview stating that relationships were his number one priority. Additionally, it was clear in all the interview groups that building and maintaining relationships with students on this campus was not only a priority, but that relationships were worked on deliberately each day both on campus and in the homes of the students. Once the relationships were strong, other things could be worked on. As A2 stated,

> In the PLC, the expectation is that the teachers are discussing instruction and looking at student results. From these conversations, they are realizing that they need to build more formatives along the way to help guide instruction and help the students master the essential skills and standards.

The administration noted that the teacher PLC had grown stronger over the preceding few school years, as teachers used their planning time to share ideas on how best to build relationships with their students. A2 spoke of such a situation,

> One great success story from this year is from a class where a teacher had a hard time connecting with their students early in the year and through relationship building throughout the year, they were able to completely turn the class around. It helped with the flow and the energy of the class.

Having high expectations on building relationships may be a priority, but it is important to explore how the stakeholder groups communicate with each other. The role of communication will be explored in the next section.

Communication

Communication surfaces as a second important theme from the data. HMS and Cactus School District prided themselves on the many ways that they could communicate with their students and parents. Whether in face-to- face conversations in a meeting or in a new and innovative smartphone application, HMS has been finding innovative ways to keep their families informed.

Administrators A1 and A2 indicated that much of the communication from math teachers goes home in the form of a syllabus or using Google classroom. T1 elaborated, "In addition to using Google classroom as a platform, students can also email me in the evening through their Google email for help with a specific homework problem and I will

respond." Despite having the technology at her fingertips, T2 stated, "My communication style is oral and repetitive. I try to be positive, energetic, and encouraging." A1 also indicated, "[I] communicate with [my] math teachers face to face through their math PLC and that much of this communication is student centered, student focused." While much of the administrator communication was carried out with the teachers, A2 also indicated that, when he can, he would communicate math-related information to parents.

Because of his math background, A2 stated,

> When in meetings, I try to educate parents on some of the resources we have online, we give them sites. Parents can sometimes become frustrated that there is no book for them to look at, but we encourage them to go to YouTube sites and similar for support."

Often, as an administrator, he would end up in meetings with parents for academic probation or discipline-related issues and parents would be embarrassed because they do not know how to help their child with their math or know where to go to ask for help. A2 said that he used these opportunities to help guide these parents in the right direction.

One of the teachers that the researcher spoke to share the same passion for trying to connect with parents, so much so that he has made parent communication his personal teacher evaluation goal for this school year. He said of this experience,

> I have made parent communication my teacher evaluation goal for this year and have sent ideas to my students' parents on ways to ask them specific questions about their school day to try and solicit a response vs. a one word, 'nothing' or 'fine' for the school day. I have gotten indirect feedback from the students about communication to their parents with things like, "Why did you tell my mom about

the quiz?" I have also been able to communicate things to them about math extension opportunities at the local university and the indirect feedback I got on that one was that there was free food. So that is a start, I guess.

Another good opportunity for communication between teachers and their students, as A2 reflected, is using the technology in the classroom. He stated, "Communication is written, it is oral, and it is unspoken (visual). Teachers can also monitor and communicate with students privately via Desmos because of the one-to-one device." Desmos, a teaching tool application that is available to teachers through their Chromebook, allows teachers to monitor all of their students' Chromebook screens simultaneously from their own monitor to check for progress and look for areas of need. This program has really opened the line of communication between our teachers and our shyer students who might be struggling and do not want to raise their hand for fear of having a wrong answer in front of their peers. It is a way for them to communicate with their teacher and receive the academic support they need without ever having to speak. It is also another way for teachers to reach more students and to differentiate their instruction.

Communication at the school site for administrators and teachers has been intentional and both groups have been trying to utilize varied modalities to reach both the students and their parent groups. All the parents support the perception of the teachers and administrators that the communication from the school and the district was ongoing and that the mode of communication was diverse. The communication included a weekly email from the administration, but the parents felt that the administration and the teachers

were available apart from that communication. Their children utilized email communications to communicate with the children's teachers.

As for specific communication and the parents, P1 stated, "Our family communication style is open. We offer positive encouragement and we talk a lot." P3 claimed, "I communicate every day and tell them how important it is to do homework and to not put their studies on the back burner. I am always reassuring my daughter that she is doing well." The overwhelming consensus of the participating parents was that the communication style was open, that communication happened often, and that it started at an early age.

Environment

Environment emerges as a third important theme from the data. The school campus is large, and students come from five feeder schools. In addition, the students change classes and work with many different teachers throughout the day. There are many pieces to the puzzle and many moving parts that make up the environment of the school. All members of the school community—the administrators, the teachers, the parents, and the community members—work to establish a culture on campus that is conducive to learning and that starts with having the right environment. The teachers share the biggest part of this in creating the best classroom environment. A1 reflected on this, saying,

> I see teachers building more opportunities for students to talk with their peers about content and how they arrived at different answers.…sharing with their peers the thought processes that they went through when trying to determine the answer to different math problems. I think when kids get a chance to talk with other kids about the productive struggle that they engage in to reach a solution to a math

problem, it gives them insights into their own thought processes because they are hearing about the thought processes of their peers.

Today, students are taking charge of their learning and internalizing the knowledge more so than every because they are teaching their peers. They are an active part of the learning as compared to the passive learner that older models of instruction used to allow them to be. Not only are the teachers instructing in this way, the configuration of the room also affords opportunities for collaboration. A1 pointed out, "Because of the shift of students collaborating more with each other in the classroom, we have also implemented a program in which our National Junior Honor Society students are supporting the after-school tutoring program."

To prepare for their classroom environment, the teachers would plan together in a PLC. The schedule at HMS allowed for common plan time by both subject department and academic teams (teachers who shared the same case load of students) to discuss instructional strategies and content. A2 summarized the concept of the PLC by saying,

> The environment of the teacher PLC can be frustrating at times for a few teachers, but the longer that they work together, the more benefit they find in having these conversations.…Teachers are taking more risks this year, especially now with the one-to-one device; they afford teachers with opportunities to note only remediate, but also to enrich students at their levels."

The professional struggle and growth that the teachers were going through together was producing a wonderful learning environment for the students. Said A2,

> Parents report that even though their child may not have an A or a B in math, that it is their favorite class because of how they feel when they are in the

> class.…Some classrooms are more traditional and quieter, and some classrooms are loud and chaotic with giggling and laughing, but math conversations are heard." T1 attributes a strong classroom environment to class buy-in. She works hard to ensure that all students are part of this process and it is not just her calling the shots for the class.

According to T1, "At the beginning of the year, we do an activity as a class to determine how the students and in turn the class learn best and from that we try to create the best learning environment possible."

Creating the best learning environment took work and the teachers and the students worked together for the first few weeks of school to build trust in each other. T3 reinforced this by saying, "I am here to help and support the students, not be their friend. I am also in charge of safety and I will do anything to make that happen." Teachers had different ways of establishing order in the classroom, from protocol to rules. T3 had unique way of creating his classroom environment.

> I generally do not post my rules and I do not have a clock in my class. I prefer to talk to my classes and model the rules and establish a culture that we refer to vs. referring to rule #1 or rule #2 on a chart. I will often tell them that I know that you can do better, so do better. I also tell them that it is ok to get a C because that means that there is still more to learn.

When working with accelerated math students, telling them that it was okay to get a C could sometimes be frustrating for the students. T2 reflected,

> My students can get frustrated and sometimes will try for a bit and if they don't get it, they will immediately just give up. Other students will simply say that they

hate math or that they can't even get it and simply shut down after they hear the word, "math." We will then talk the students through their frustrations so that they can see that they really are strong math students. We know the importance of communicating with our students and their parents about what 'productive struggle' is and how much time they should allow for this struggle when learning a new math concept at home.

T3 discussed this idea, saying,

Students should spend an honest hour with math at home. If after an hour, they cannot get the homework, they should put it away and talk about it in class the next day. Sometimes it is me, its them, for whatever reason, they just don't get the concept. I tell them that it is ok to fail or to struggle through it, but I don't want them spending too much time on homework.

Even though this message was being communicated consistently from the teachers to the students and the parents, the administrators found that they too had to explain it to parents. Per A2,

When parents become frustrated with the content of their child's grade, I remind them that one of the most important things about math is the ability to think and organize yourself to solve a problem and that this thinking process at a higher level is attractive to future employers. Math is not hereditary. We all learn differently and at different rates. We teach persistence and that it is ok to fail and to start over.

The data that the researcher collected from the parents of the students who were successful in math supported the idea of allowing a student to struggle and push through

to an understanding of a concept. In T4's experience, "[I] can usually determine the success of a student early on based upon the strength of their basic skills and their parents' level of involvement and encouragement."

Like a teacher putting in the demanding work at the beginning of the school year, the parents reported a lot of demanding work starting in kindergarten to ensure that a routine and a work ethic carried through their children's school years. P7 reflected by saying,

> You have math homework everyday whether your teacher assigns it or not. My son would sit at the table for a few minutes each night to complete math facts, including bridge books during the summer to the point where he would ask for them. They became part of his routine."
>
> In addition to math facts, math is also part of the everyday conversation. As P3 indicated, Whether it is bills or cooking or conversions, we are talking about math.…We also go to museums, car shows, play board games, and card games.…Growing up for me, education was not a priority so now that I am an adult, it is a priority and I make sure that I communicate that with my children."

She intentionally talked about education daily and how important it was.

In addition to the classroom, "Our children trust us and come to us with just about anything. We also encourage activities outside of the classroom. My daughter does lots of cooking, she runs an egg business, dances, and crafts" (P1). "We go to Children's Museums, we travel a lot and go to National Parks and we find places for them to work on math and science in the summer. Those kinds of things are good for critical thinking" (P2).

The Latinx (and Caucasian) parents of the accelerated math students at this school site took education seriously. They knew that setting high expectations from an early age, talking about education often, having open communication with their children, making all types of educational experiences a priority, and creating an educationally friendly environment both at home and at school were all important for the success of their child not only in math, but in all subjects. It was evident that the administrators, teachers, and parents in this school community were all on the same page where math success and parent communication were at issue.

Chapter 5. Conclusions and Recommendations

Educators are focused on continuing to find ways to build relationships with students and to try different strategies to improve their instructional methods to reach more students. They are doing this with limited resources and funding, growing class sizes, and changing demographics of the students that they teach. Despite all the changes, teachers are still charged with increasing the academic success, particularly for ethnic minority students, who typically perform lower than their peers from the dominant culture. As the Latinx population continues to grow in public schools, it is becoming increasingly important to focus energy on connecting with them and utilizing strategies to ensure increased academic success.

Marrero (2016) found that Latinx students are about 25% of the total public-school population and 40% of the total school population in nine states. Additionally, of the 17.5 million Latinx students in our school system, Latinx students are academically underperforming their White and Asian classmates. This is especially true in math (Layton, 2014). Additionally, Latinx students are underrepresented in advanced math classes. According to the Department of Education's (2003b) report, *Status and Trends in Hispanic Education*, 26% of Latinx students are in advanced math classes, with 59% of Latinx only completing middle level math classes (Layton, 2014). This equates to 12 of every 1,000 Latinx students taking AP Calculus in high school. Despite these weak numbers, the data is moving in the right direction and shows a significant jump in math scores from 2003-2013 for Latinx students. Math scores increased by 13 points at the 8th grade level, moving Latinx students at the 8th grade level, one full grade level (Layton, 2014).

Previous literature has examined the evolution of this increased math success of Latinx students in math. Over a decade ago, educators focused on reforming instruction by aligning standards, changing the way teachers prepared to work with students at the secondary level, making math more relatable, and preparing them for more workplace math literacy (Holloway, 2004). In addition, and important in understanding how to increase the academic achievement of Latinx students is the work of Moll et al. (1992) and Gonzalez et al. (1995), who performed a body of research that identified the "funds of knowledge," that is, the accumulated and culturally developed bodies of knowledge and skills essential for household or individual functioning and well-being. The research identified differences between the Latinx home environment and the school environment. The often rigid, inflexible, passive school and classroom should become more like a home environment that is flexible, adaptive, and activity-oriented (Hogg, 2011; Rodriguez, 2013). In *the Latino Education Crisis*, Gandara and Contreras (2010) stated that it is not enough to align standards and increase our knowledge of the Latinx home environment; schools must also give teachers the specialized tools necessary to work with the Latinx population. Teachers must have the skills to communicate with parents and motivate their students. They can do this by understanding the circumstances of the students' lives and histories. Education is the single most effective way to integrate the burgeoning population of Latinos into the U.S. economy and society.

Unfortunately, stereotypes and self-fulfilling prophecies take priority with younger Latinx students, as the curriculum they receive in early elementary school fails to prepare them to succeed or excel in school over the longer term. Latinx students have been found to perform poorly in math compared to all other ethnic groups, and, what is

more, these gaps in math achievement have widened over time. One explanation for this assumes that such students have lower academic ability because of an early language barrier. Thus, even though considered gifted, students are placed in remedial classes that do not challenge them. Another explanation is that their parents do not know how to navigate the U.S. school system or do not engage effectively in activities in and out of the home that support achievement in in U.S. schools. However, within the last decade, research has looked at what schools can do to increase academic achievement, specifically in math.

Sheldon and Epstein (2005) reported that schools not only need to focus on the curriculum and instruction and student readiness for math, but also to pay more attention to the level of support for math in home environments. Jeynes' (2010; 2017) research emphasized the importance of involving families and found that involving parents was crucial for academic success. Jeynes' 2017 work looked deeper into the subtle parent involvement strategies of Latinx families. The subtle strategies included setting high expectations, communication, and parent-child mutual respect.

This present study examined a suburban middle school in the southwest United States, how the parents at this school site have been engaged in their child's math education, and how the teachers and administration at this school site has encouraged and engaged parents in their children's math education. This study has addressed the following research questions:

RQ1: How do middle school administrators encourage and support home-based Latinx parent involvement in advanced mathematics?

RQ2: How do middle school math teachers encourage and support home-based Latinx parent involvement in advanced mathematics?

RQ3: How do Latinx family members facilitate support for advanced mathematics?

This study is a qualitative phenomenological case study with a snowball sample. Two district administrators were consulted to gain access to the interview participants initially and to gain a better understanding of math in the school district and at the school site. Subsequent interviews were conducted with the two site administrators, four math teachers, and seven parents. Two of the teachers taught advanced math students and the other two teachers taught general and special education math. Although the researcher requested nominations of Latinx parents, two of the seven parents were Caucasian.

Key Findings

Administrators

The researcher interviewed the two administrators—the principal or the school, a White male, and the associate principal, a Latinx male. The views of both men were similar. A former math teacher, the associate principal was the evaluator for the math teachers. In addition, it should be noted that A2 was the only Latinx administrator in the district. The administrators discussed the district and school-wide focus on math curriculum and instruction. They both spoke about their support of the site's math teacher PLC. They indicated that the PLC was feeling more confident with the recently adopted district curricular materials and teacher generated math unit assessments. In addition, they mentioned that the math teachers at HMS worked closely with the 5th and 6th grade teachers to gather math data on the incoming students. They gathered this data to ensure the most appropriate math placement at the elementary level to set them up for success in

middle and high school. The researcher determined that the math data were compiled with input from the math teachers and the administrators. Although parents were not involved with this process, they were informed about placement decisions.

The administrators indicated that, with their direction, the focus of the math PLC was to build relationships with the students first and then look at the data to help drive instruction and increase academic achievement. Their expectation was that teachers would build and maintain relationships with their students. They did not mention any specifics about building relationships with the parents. The administrators confirmed that not only were they seeing increased relationships with the teachers and the students, they were also seeing increased relationships and collaboration with the students both in the classroom, discussing content, and after school, tutoring each other. The principal concluded,

> The teachers are building in more opportunities for students to talk with their peers about content and how they arrived at different answers; the kids get a chance to talk with other kids about that productive struggle that they engage in to reach a solution to a math problem.

The administrators expected that any parent call or email would be returned within 24 hours and that all curricular information would be communicated with a syllabus at the beginning of the school year. There had been no school-wide math communication. Any communication had been generated by teachers individually. Often, the content of the communication was unit or lesson specific and would involve providing a website or link for parent support of a particular lesson.

Much of the administrator-directed math communication with parents was in response to parents who were reaching out to them during meetings or in a phone call, usually about a child who is struggling. The associate principal, a former math teacher, reported that he specifically supported his math teachers by offering tutoring after school. He also tried to help parents change their mindsets to a more positive attitude about math. He also mentioned trying to change the conversation with both parents and students about math ability not being hereditary and that all students could do math.

The administrators sent a weekly email to all parents, that varied each week, but usually contained calendar events of academic and sports activities, school club and tutoring information, and any pertinent district level communication. Counseling type resources such as elementary to middle school transition help, middle school social and emotional needs, navigating social media, and conflict resolution, were communicated mostly at the beginning of the school year. The soft skills of organization and time management were communicated off and on throughout the school year, as deemed necessary. The principal made a point to call the parents of the honor roll students each quarter and personally invite them to the special events that he hosted with their children.

Teachers

The researcher interviewed four teachers—two women and two men, all White. These teachers were considered veterans, and they shared similar views. They all cared very much for their students and were somewhat traditional in their approaches to communication. Like the administrators, the teachers discussed the district and school-wide focus on math curriculum and instruction. These veteran teachers felt supported by their site administrators, appreciated that their evaluator, the AP, was a former teacher, and indicated that the district adoption of a district wide curriculum was helpful for

planning. The teachers were more confident than in previous years in their instructional planning at the time of the interview, as the district adopted a uniform curricular resource with district-wide pacing yet leaving the teachers with autonomy over the creation of the assessments.

Also, like the administrators, they indicated that their math PLC was student centered, and they worked hard to build, develop, and maintain relationships with their students. The teachers mentioned specific activities that they performed at the beginning of the school year to build a collaborative culture in the classroom. They established rules and protocol so that students knew what to expect not only of the teachers but of each other. Within this collaborative culture, the teachers at this school site had developed an environment where students could struggle and learn together. An example of this was the teachers telling their students that they would not always earn an A, but that learning the steps and process of the problem was just as important.

They reinforced what the administrators stated about beginning of the year syllabus communication. They communicated with parents mostly via email. Much of the communication with them as teachers was parent initiated and in the form of email, as, for example, when parents needed the answer to a question about how to tackle a problem or wanted clarification about their child's grade. None of the teachers sent out weekly or regular emails to all the parents. The email communication with parents was sporadic and generally accompanied a difficult lesson; such emails often provided a website for support or a video tutorial dealing with the difficult content. The one-to-one communication that all the teachers had with parents included back-to-school night, parent-teacher conferences, and student academic meetings. T1 and T2 mentioned that

anytime they heard parents talking negatively about math, they urged them to speak positively about math and to encourage their children to think and to talk positively about math. This directly paralleled the conversations of A2 who told parents that math ability was not hereditary and that parents and students need to work hard to talk about math in a positive light.

T1 mentioned that she corresponded with about 10-12 families monthly in response to parent questions about assignments. T3 disclosed that he tied his teacher evaluation goal to increased, intentional parent communication, and T4 said that he selected a handful of parents to contact from each of his classes at the end of year to celebrate the longitudinal success of their child over the course of the school year. He said that he discussed everything from work ethic to grades in these conversations.

Finally, the teachers confirmed that the administrators communicated with the parents weekly with big picture things that were going on around campus and that sometimes that communication included social and emotional support for their middle school child. They did note, however, that there was no school-wide math communication, parent classes, or any type of math or curriculum nights recently. T2 mentioned that she wished that something like that would be re-initiated on campus, as she felt it would benefit many of the families of her students. In addition, she mentioned that the school site was implementing additional math support for the upcoming school year that involved two master teachers teaching half of the day and supporting their colleagues the other half of the day.

Parents

The parents all spoke highly of their experiences with both the school and their child's math teacher. Responses were similar from all parent participants the parents felt

the teachers were accessible, offered support when prompted by their children, and provided email extensions for difficult lessons. For some of the parents, this was their second and third child not only to attend the school, but also to have the same math teacher; thus, these were comfortable with the current circumstances and were knowledgeable about their children's teacher's style.

Much of the parental reflection focused on setting high expectations for their children for math and all other subjects; they talked openly and often about school, especially about math, personal topics, and providing educational opportunities for their children outside of the classroom. They also mentioned that preparing or practicing for learning happened when their children were much younger, when the parents were hoping to instill the habits conducive to learning, such as math facts practice and doing homework.

As for math, the parents mentioned that they did everyday math activities. For example, they encouraged their children to think through the steps of solving the problems on their own. They also advised them to refer to class notes, to access online resources, or to talk to their teacher before the parents would help them with their homework. Each parent usually spoke positively and with encouragement about math. They felt supported by school site administration and perceived the administrators as being supportive of their children's math teacher and the math program.

Links to the Literature

Framework

Three studies that deal specifically with Latinx parent involvement in mathematics guided this study: Sheldon & Epstein (2005) and Jeynes (2010; 2017). Sheldon and Epstein's quantitative study included a small, highly diverse population of

eighteen schools, eight of which were middle and high schools (2005). Their research explored the efforts of schools to involve families and how the school communicates with families about students' mathematics education. In addition, the research looked at the impact of targeted involvement activities and the effect they had on student mathematics' achievement. They found that students were struggling because of poor quality curriculum and instruction, student attitudes about math, student readiness and background, and a low level of support for math in home environments.

The authors used Epstein's framework of parent involvement to analyze the data: parenting workshops, communication, volunteering, and audience support, learning activities at home, and collaborating with the community. From this analysis, they determined that several foundational practices were helpful for establishing effective partnerships with schools and families: giving parents information on how to contact mathematics teachers, scheduling conferences with parents of students who were struggling in mathematics and providing information about student progress and problems in mathematics on report cards. To that end, however, this small sample did reveal that truly sustainable school-family partnerships that show promising results in increasing academic math achievement involve mathematics-focused family and community involvement practices. Table 2 shows the partnership practices spelled out by Epstein and Sheldon and the fulfillment of these practices at HMS.

Table 2

School Initiated Math Specific Activities for Parents

Mathematics partnership practices	Research-based examples of school outreach to families	Fulfillment of HMS	HMS Stakeholder involved
Parenting workshops	Workshops for parents on math skills and expectations at school and in the evening	Partial (guidance for struggle)	Teacher Parent
Communicating	Schedule conferences with struggling students	Partial – happens in the spring	Teacher
	Give parents math teacher contact info	Yes – syllabus, website	Teacher
	Inform parents of progress in math	Yes – online parent portal	Teacher Administrator
	Issue certificates for proficiency in math	Partial – math student of the quarter by academic team only	Teacher Administrator Parent
Volunteering and audience support	Request parent or community members to tutor	No	N/A
	Invite parent or community members to assemblies for improvement and excellence in math	Yes (quarterly)	Teacher Administrator Parent
Learning Activities at Home	Offer parents student math game packets or lending library to use at home	Partial (Chromebooks)	Teacher Parent
	Assign math homework that requires them to show and discuss math skills at home with family member	No	N/A
	Offer videotapes on math skills that families can view at school or home	Partial (websites via Chromebook)	Teacher Parent
Collaborating with Community	Organize presentations on how math is used by business, government, industry	No	N/A

Note.

Interviewees reported parent communication, inviting parents on campus to celebrate academic success, and partially offering electronic resources via the Chromebook. This communication was about education in general and not necessarily

about math specifically. HMS is working to improve on the following areas: offering parenting workshops, inviting parents/community members on campus to tutor, providing math specific lessons at a home/lending library, and inviting community members on campus to present about how math is used in business and industry.

Answers to the Research Questions

RQ1: How do middle school administrators encourage and support home-based Latinx parent involvement in advanced mathematics?

The administrators at HMS communicated with parents and community members weekly in an email that included scheduled events, happenings on campus, and pertinent developmental articles for middle school students, but they did not provide any parent math workshops currently or bring parents on campus to tutor students. They did, however, invite parents to academic awards assemblies and maintained an open-door policy when parents visited the campus.

The administrators worked closely with the math teacher PLC, with an emphasis on curriculum, instruction, assessment, and, most importantly, teachers building and maintaining relationships with students. They witnessed classroom relationship building in action upon entering the classrooms, from teacher high fives entering the room and student developed expectations on the walls to collaborative furniture arrangements and students teaching each other math concepts.

In addition, the administrators had an expectation that the teachers would provide a comprehensive syllabus for distribution to parents at the beginning of the year and would return parent phone calls and emails within 24 hours of receiving them. Parents were viewed as customers and were shown an inviting environment while on campus. The teachers confirmed similar practices.

RQ 2: How do middle school math teachers encourage and support home-based Latinx parent involvement in advanced mathematics?

The school hosted a back to-school-night at the beginning of the school year so that the parents could meet the teachers and receive an overview of the curriculum for the year. While some of the teachers emailed the parents a few times each quarter with a heads up for an upcoming test or offered a supplemental resource for a difficult lesson, most of the teachers communicated with the parents via email when parents reached out with a question or a concern. One teacher recalled about ten to twelve email correspondences from parents monthly.

Parents had daily online access to their child's progress via an app. Teachers reported that they did their best to keep their grades updated each week. Each quarter was nine weeks long and there was a progress report after each four and one-half weeks. The school had moved to a mostly online service for all student-related matters, such as grades and administrative paperwork. There was an option to have things printed if a parent requested it.

In addition to daily grade checks, HMS offered school-wide student conferences after the first quarter. Conferences were offered again in the spring for students who were experiencing academic difficulty and were in danger of failing the class. The teacher team worked together, analyzing all student data to determine which students would need to come in for a conference. Conferences were student led and were held in one area or classroom, so that a parent could meet with all their child's teachers together. Even though parents indicated that HMS communicated appropriately, the school missed

opportunities to reach all students with additional math support opportunities for families. As Sheldon and Epstein (2005) concluded,

> After accounting for prior levels of mathematics proficiency in the schools, we found that mathematics-focused, learning at home activities consistently and positively related to improvements in the percentages of students who were proficient on mathematics achievement tests. (p. 203)

In attempting to provide goal-oriented, subject-specific math involvement activities for home use, the teachers fell short. One teacher mentioned communicating extension activities that the students and their parents could participate in at the local university, but other than this, there was no further mention of specific math involvement activities for the home. (Currently, each student at HMS is assigned a Chromebook. The teachers use these devices at varying levels, but used to their fullest potential, Chromebooks are excellent ways to bring curricular support into the home.) Today, teachers would discuss using *Google Classroom* to communicate lesson objectives and support available and would briefly discuss using certain math applications and extensions via the Chromebook, including online use of commercial or common source websites for video tutorials about a math concept that might be difficult to grasp.

Another area that is missing at HMS are workshops or training sessions for parents. The district-provided math training and workshops for the teachers, but not for parents. As indicated earlier, the individual teachers occasionally provided emailed resources for the parents on a need's basis for specific lessons or units so that they could better support their child on a more difficult math concept, but there were not any ongoing or campus-wide math training opportunities available to parents. The teachers

and the administrators did mention that they would like to offer math trainings or tutorials for parents.

HMS is strong in its foundational practices of giving parents information on how to contact mathematics teachers, of scheduling conferences with parents of students who were struggling in mathematics, and of providing information about student progress and problems in mathematics on report cards. However, the area that HMS needs to improve is the sustainable school-family partnerships that show promising results in increased academic math achievement using mathematics-focused family and community involvement practices. The literature shows that homework assignments that required students and parents to interact and talk about mathematics and mathematics materials and resources provided to families for home use increased math academic achievement (Sheldon & Epstein, 2005). Finally, Sheldon and Epstein (2005) pointed to a continuing "need for educators to exert extra efforts to revise the mathematics curriculum, instructional approaches, quality of teaching, and family and community partnerships to improve students' skills and test scores."

HMS is focusing its efforts on developing the curriculum and improving instructional approaches through their math PLC; however, it needs to grow in the area of family and community partnerships and sustainable math practices in the home. For this information, the work of Jeynes (2010, 2017) is considered.

Jeynes based his analysis on Epstein's work of parenting, communicating, volunteering, learn at home, decision making, and collaborating with the community and added to it aspects of emotional and psychological support. For this study, findings from two studies have guided this research.

Jeynes' (2010) earlier research encouraged schools to practice setting high expectations for math and to teach parents the importance of subtle parent involvement strategies and how to communicate with their children versus focusing solely on the curriculum. Jeynes' study stemmed from the social learning theory of Bandura and Walters (1963) and their results on the importance of parent expectations and open, loving, family communication. Jeynes further developed the ideas of parents setting high expectations, communication, and mutual respect. He called upon educators for action:

> First, educate parents to comprehend, and then act on, the fact that it is probably some of the subtler aspects of parental involvement, such as high expectations and communication, that are among the most important. Second, educate school leaders, teachers, and staff to understand that raising parental participation may be more a function of subtle but important demonstrations of love and respect than a matter of instructing parents to apply particular methods of helping children. (p. 769)

Jeynes' research began to shift both the conversation and the practice of how parent involvement is viewed by both educators and parents. Making the greatest impacts were not the curricular programs and parent involvement strategies themselves, but the relationships, the communication, and the subtler ways that teachers and parents communicated with students and the expectations that they set. As it became clearer that these subtler forms of involvement were promising more parent involvement and, in turn, increasing academic achievement, there were still unanswered questions, most specifically the implications of subtle parent involvement with minority students.

In 2017, based on a meta-analysis of over twenty-eight studies, Jeynes reported that parental style and strong parent-child communication were associated with higher levels of academic achievement. These two types of parental involvement are known as the *subtle aspects of involvement*. Latinx families tended to be stronger in the subtle aspects of parent involvement when compared to White and Asian families.

Jeynes' review looked at which aspects of emotional and psychological support are most important and to what degree parent involvement is associated with increased levels of academic achievement and better personal behavior among Latinx students. Overall, he determined that outcomes for parent involvement increased for academics over behavior and that the implications for elementary and secondary levels were similar. The subtle parenting styles of Latinx parents showed more persistence than did other parent groups from youth to adulthood. Table 4 summarizes the earlier work of Jeynes. The 2010 study was school driven, indicating what teachers and schools could do to involve more parents.

Table 3

Subtle Aspects of Parent Involvement: Implications for Schools

School-based strategies to encourage parent involvement	Research-based examples of teacher/school outreach	Fulfillment of HMS	HMS Stakeholder involved
Expectations	Set high academic expectations	Yes (spoken and spelled out in syllabus)	Teacher Parent
	Provide a collaborative environment	Yes (classroom furniture and instructional model)	
Communication	Instruct parents on overt expressions of engagement like homework checking and household rules	Partial (encouraged homework checking and finite time limit – allow for struggle)	Teacher Parent
	Effort to instruct parents on subtle aspects of parent involvement	Partial (brief mention by some teachers at open house to speak positively about math)	
Environment	Establish and model a customer friendly school environment	Yes (good environment but more reactive than proactive)	Administration Teacher Parent
	Demonstrate loving, caring attitudes	Yes (written and face to face)	
	Model respect	Yes (timely communication, willingness to meet spontaneously)	

Note. (Jeynes 2010)

Teacher to parent communication style was discussed earlier in reference to the work of Sheldon and Epstein (2005). This section will review what math teachers were doing when Jeynes' study of expectations is considered (2010).

The teachers proudly spoke about how important it was to build and maintain relationships with their students. The teachers discussed the strategies they used at the beginning of the school year to establish a culture of support that all students could be part of and in which they could feel safe to ask questions and to struggle and learn together. While the conversations with parents about math were becoming more frequent, the teachers indicated that HMS still had work to do in this area.

Two teachers discussed conversations they had with parents at back-to-school-night earlier in the school year. They encouraged all parents to speak positively about math with their child at home, no matter how frustrated the parent might be with new math and not understanding it. Outside of this communication, there was no other teacher-driven parent development when math was considered.

Also, the teachers of the advanced math students encouraged struggle and failure. They taught their students to work through the struggle to learn the process of solving a problem, explaining that this would translate into other areas of their lives, that they would learn to fight through adversity, and that they would come to know what struggle and failure felt like

Jeynes (2010) deepened the research on the level of support for math in the home environment by looking specifically on the subtle things that parents and schools could do to increase more meaningful involvement as the data showed a direct correlation

between parent involvement and increased academic success across all grades, races, and ethnicities.

The third goal of this study was to look at what Latinx family members are doing to support their child in advanced math, as stated in RQ3.

RQ 3: How do Latinx family members facilitate support for advanced mathematics?

Table 4 presents the home-based practices and research-based strategies in which Latinx families are engaging.

Table 4

Relationship Between Parent Involvement and Latinx Student Outcomes (Jeynes 2017)

Home-based strategies to encourage parent involvement (Latinx families)	Researched-based examples parent strategies at home	Fulfillment of Latinx (and White) parents at HMS	HMS Stakeholder involved
Expectations	Set high academic expectations	Yes (conversations and unsaid)	Parent
	Set high behavioral expectations	Yes (expectations set at an early age, now intrinsic)	
Communication	Monitoring academic progress	Yes (spoken and online grade checks)	Parent Teacher
	Open, loving communication style	Yes (reflected in conversation and parenting style)	Parent
Environment	Communicate about school	Yes (constant, organic, fluid)	Parent
	Hold expectations high for their child	Yes (daily and in all areas)	Parent Teacher
	Show love, respect, sensitivity, and compassion (reciprocal)	Yes (communication style and words used)	

For Table 5, data source is interview data from the current study, parents were interviewed: five Latinx and two White. One pair of parents were husband and wife. Of the parents interviewed, six were female and one was male. Despite ethnic and gender differences, the parents were consistent in their answers and shared similar views on

parenting style, communication, and how best to support their children in advanced math. A look at the data shows a strong school culture and environment, open communication, a focus on curriculum and planning in mathematics, and satisfied administrators, math teachers, and Latinx parents.

All parent participants, even with differences in their own personal math experience, their ability levels with math, and their understanding of their child's math curriculum had high expectations of their child in math. They practiced this without collaboration with the school. They spoke highly about the importance of math and doing well in it. They provided a space for their child to do math at home and talked through the process of problem solving when their child became stumped with a homework math problem. They made math a priority and provided opportunities for their child to practice math skills from an early age.

Now, at the middle school level, they provided opportunities for daily conversations with their child about math. If their student became stuck on a problem, they encouraged their children to email the classroom teacher, to use online resources, or to go through the thought process on questioning technique that the teacher used in class to come to the answer for the problem. With guidance from their child's teacher, the parents only allowed their child to do homework for a set amount of time and feel comfortable struggling or "failing" at the homework at times only to return to school the next day for support for the teacher.

For the parents, setting high behavior expectations started at an early age and they instilled a modeled and practiced behavior in their child from as early as their children could process the concept of goal setting. These expectations translated into their

children's habits and the children began to have these expectations for themselves. In addition to setting high expectations for math, the parents also discussed an open communication style and the importance of parent-teen discussions. Conversations for these parents with their teen happened organically and as often as possible so that when important things needed to be discussed, the foundation was already there.

The data from this study support Jeynes' finding that the subtler parenting style of Latinx parents is more effective as the child gets older (2017). Parents were asking open-ended questions of their child about their school day, including their academic and social concerns. The parents were also talking at unscheduled times about the future, about college, and setting high expectations for their child that was now rubbing off on their child, who was setting high expectations for themselves. Finally, these parents were providing a loving, caring environment for their child that included patience, understanding, listening, participation, and forgiveness. They worked hard to build up a trust with them and indicated that the process started years before they entered middle school.

Recommendations

While it is evident that HMS and its district have put much energy into math, much of the focus has been on curriculum and instruction. In moving forward, with a goal of equity in having advanced math classes that are ethnically proportional to the demographic population of the school, there is reason to focus energy and time on these findings. These findings are (a) teaching parents about subtle parent involvement strategies like open communication and setting high expectations and, even more importantly, (b) providing specific and tangible math lessons that go home for parents and their children to work on together. The combination of subtle parent involvement and

math support could benefit the social, emotional, and cultural needs of the growing minority-majority population of Latinx students. There are also a few additional things that must be considered after a review of the data from this study. These include the concept of colorblindness, successful Latinx student acculturation, and its implications for leadership.

Other Themes

This study was designed to learn about support for home-based parent involvement for Latinx students in advanced level middle school math classes (i.e., algebra I). However, even with clear communication about the goal of the study to the administrators and the teachers, two of the seven parents identified by one teacher were White and had White students. In addition, no interviewee ever discussed race or ethnicity. When students were talked about or a reference to a specific strategy was made, students were discussed neutrally as a group without any mention to race, ethnicity, or gender. The Latinx parents were also neutral in their language, focusing only on communication and academic strategies for their child and expressing that they felt very much supported by the school.

Initially, this appeared to be colorblindness on the part of the teacher who recommended the White parents. While data in this study cannot confirm that adults were conscious of race, it is clear from an absence of any mention of race that the interviewees had adopted this colorblindness approach. The ideology of "colorblindness" denies the salience of race, scorns those who talk about race, and increasingly proclaims that we are all Americans (Bonilla-Silva, 2004). In his work on colorblindness in teacher education, Rosenburg (2004) said that colorblindness entails a contradiction of "claiming not to see race while being conscious of it, as well as constituted by it" (2004). Furthermore,

Welton, Diem, and Jellison-Holme (2013) conducted a qualitative case study of a rapidly changing suburban district that was going through demographic shifts and found that its practices were race neutral. The demographics of the school in their study was similar to the school under study in this dissertation study (54% Latinx, 36% White, 6% African American, and 2% Asian). It can be concluded that HMS is not unique in its race neutral practices and approach to its students.

When data were analyzed in this study, all conversations were race neutral and students were categorized by their academic ability and not their race identity. Or, were simply labeled as minority or at risk. This study brings to light that many educators are aware of the changing demographics, but that they are not talking about the changes or adjusting policies and practices to address these changes. In their work on educating education leaders, Diem and Carpenter (2013) concluded, "[When] educators fail to engage in race-related discussions they have no framework in which to critically consider how racism shapes policy and practices. If leaders want race-related conversations and change, leadership programs must prepare them" (2013). This colorblindness at Howell does not appear to be intentional.

When questions were asked of the interviewees, answers were given to indicate that all pupils that the teachers worked with were students and that they did not see the students as being differentiated by color, gender, race, or ethnicity. The interviewees tended to treat or look at all of students the same way when academics and discipline were considered. Colorblindness can prove to be problematic if schools adhere to policies and practices created by a previously dominant culture. Under such circumstances, such schools may find that their advanced classes do not reflect the student proportions of the

entire school. Many Latinx students are left out of advanced math and in turn could contribute to underperforming or dropping out.

The data from this study data indicate that the Latinx students who are enrolled in the advanced math classes and are having academic success have assimilated to the dominant culture of the school (Caucasian), are middle class, have intact, two-parent households, and at least one parent with education beyond high school. Since their parents also have middle-class backgrounds, the researcher cannot generalize that the placement of these students had anything to do with parent involvement, but rather, had more to do with their middle-class status. Furthermore, the researcher cannot generalize that the subtle parent involvement strategies utilized by the parents was an indicator of success for their child in the advanced mathematics class.

Finally, minority student enrollment in advanced math classes at HMS were not proportional to the total school minority enrollment. More specifically, the total school enrollment for Latinx students was just under 40%, while the enrollment in advanced math classes for Latinx students is just under 10%. As Gandara and Contreras (2009) concluded in *The Latino Education Crisis*:

> Achievement gaps will not be narrowed until Latinx students are given the same access to highly rigorous gifted and talented programs. Unfortunately, if Latino students are viewed as less capable, based on early test scores, language difference, or other indicators of academic preparation, they are not likely to be assigned to the classes and activities that can catapult them into higher achievement, setting up a vicious cycle from which it is difficult to emerge. (p. 312)

District Math Approaches

As Sheldon and Epstein concluded (2005), educators need to exert extra effort in revising the math curriculum, analyze the instructional approaches and quality of teaching, but most importantly, revise the approaches to family and community partnerships to improve students' skills and test scores. Parent involvement programs need to include specific components by race, gender, and class (Jeynes, 2010). Finally, educators need to understand that Latinx families' parenting styles are subtler and that their parent involvement style focuses on expectation, communication, and mutual respect (Jeynes, 2017). The research considers it worthwhile to reflect briefly on Angela Valenzuela's work on what she calls *subtractive schooling*.

Angela Valenzuela (1999), in *Subtractive Schooling*, stated that schools make blanket judgements about ethnicity and underachievement, and the school system often tries to change Latinx students to conform to the dominant culture. She has encouraged schools to consider the students' strengths and to be aware of the subtractive nature of devaluing their cultural identity. Students often find it difficult to develop social relationships or to develop meaningful connections with their teachers. Latinx students find that their names are often revised or that they are disinfected of their identities. Mexican born students also find that the U.S. curriculum often does not mirror their experience in Mexico with hands-on learning with real world connections and group-based learning. More academically advanced Latinx students find themselves in remedial classes because of their language barrier with English. Not being proficient in English is often equated with ignorance and Mexican born students are not always afforded the opportunity to take academically advanced subject matter. This was not the case,

however, in the population sample of this study, as these students had already assimilated to the middle-class American public-school system.

Despite this information, the priority at HMS centers on instruction and takes a one-size-fits-all approach. This is proving to create an advanced math class that is predominantly Caucasian and Asian. Based upon the responses of the parents interviewed, being successful in math at this school site (i.e., getting into the advanced math class and doing well), is tied to the acculturation of the student's family (i.e., education level of the parents, socioeconomic level of the parents, and ability to navigate the school system). The school wants to improve math and the families are doing well with subtle parent involvement, but they are missing two recommendations made in the general research literature that Latinx families need to be more involved and in the math literature that parents need to be better equipped to help their child with math.

The environment at HMS is one of openness and the school seemingly wants to do better in building parent partnerships. There is a general theme of kindness in the school and the community at large. This is apparent from the number of outreach programs for basic needs and extension and enrichment opportunities for children, families, and community members from athletics to arts and entertainment.

When unintentional colorblind practices, Latinx (or any other) student culture, and advanced math (or any other subject) placement are considered at HMS, the possibilities are endless. The current structures and staffing at the school site are strong, the desire for all students to succeed is high, and the willingness to look at data is there.

Implications for Practice

Leadership

The radical demographic shifts currently occurring within schools throughout the United States underscore the importance of discussing issues of race and racism in the educational leadership classroom. The education of a more diverse student population should provide the impetus for a renewed focus on how the country prepare the leaders of its public schools (Diem & Carpenter, 2013). Many of today's public-school administrators are the products of leadership preparation programs and instructors that have had little to no race-related coursework or training. Discussions of race and how to have race-related conversations are missing from education leadership and teacher training programs. This is also true of HMS and the district in which is resides. For decades past, the policies and practices of the district were written, followed, and maintained by the then dominant Caucasian culture. Teaching and building relationships with students, without considering their ethnicity and their cultural background can be detrimental when trying to increase academic achievement.

Teachers

In the absence of any other training, teachers tend to default to a common denominator in their approach to all students. When instruction is considered, teachers are more likely to differentiate for learning styles based upon specific specialized testing, but when parent communication, discipline, and other components of a classroom are considered, often teachers default to a single, unified approach based on time and resources.

As Latinx students slowly become the minority-majority in many schools, including the one studied, teachers must:

> have the skills and means for communicating with parents and enlisting them as allies; they must be able to communicate and motivate their students; they must understand the circumstances of the students' lives and histories. Critically, teachers must know how to provide deep, rich, and intellectually challenging instruction that pushes students to excel. (Gandara & Contereas, p. 320)

Recommendation for Future Research

Because this study only relied on a small snowball sample of advanced math Latinx students, it cannot be determined if their success in advanced math at HMS was due to their engagement with their parents in their discussions about math or their middle-class background. To further examine these dynamics, the following section will discuss further necessary research.

First, it will be necessary to research non-middle-class parents. There is a small number of Latinx students in advanced math classes. There are more Latinx students represented in non-advanced math classes. This research will provide an opportunity to look at non-middle-class parenting and communication styles in the home along with non-middle-class families and students and navigation of the school system. The parents can provide valuable information to educators and find ways to better address the needs of the families and the students. This can be done by setting goals and finding opportunities for them to be more connected to the school system and then find ways to get more students into more advanced academic classes.

A second dimension of necessary research is to identify students at an earlier age (i.e., grades 4-6), before advanced math placements are determined. It will also be important to look at the criteria for advanced math placement and to involve parents in this process beyond just the math teachers and administrators. In identifying students at a

younger age, educators could remediate skills necessary for success in higher-level math classes and educate parents about advanced math opportunities.

Finally, to fully engage parents in this process, a parent curriculum would need to be developed. The curriculum could both support the teachers in their work with parents and support the parents in their understanding of the school system and how to navigate it. The curriculum could include talking points for teachers, for example, for use at open houses or with literature that goes out to parents. The curriculum could also help parents with cues and how to engage their child in discussions about math. It could also help bring parents together to learn about math and other academic programs and how to better support their child. Bringing parents together would also help to increase parents' social and cultural capital within an unintentionally colorblind environment. Teachers and parents could be surveyed to determine the area of greatest need and subsequently build a curriculum from this data.

Appendix A

Interview Protocol

Prior to each interview

1. Schedule a 60-90-minute interview with each of the identified math teachers, school leaders and Latinx parents at Howell Middle School.
2. Be sure the school is aware of the need for a private space in which to conduct the interview separately with each person or identify a public private space ahead of time with the interviewee, such as at a community library conference room.
3. Be sure to bring: paper tablet, interview protocol, pen, and two tape recording devices to each meeting.

After each interview

1. Download the audio files to computer.
2. Send a copy of the audio files to the transcription company.
3. When the transcript is received, review the transcript for accuracy.
4. Email a copy of the transcript to each interviewee, upon request.

Introductory Script

Thank you for agreeing to meet with me. As you may know, I am a former high school teacher and public-school administrator and I am a doctoral student at the University of Arizona in the Educational Leadership Department. I have been researching secondary parent involvement at the secondary level, with an emphasis on Latinx female relatives through the lens of mathematics. Having worked in this school district prior as a secondary administrator, I have selected Howell Middle School as a convenience sample due to familiarity and the fact that it fits my criteria of having a Latinx student population of greater than 30%.

The University of Arizona Institutional Review Board has approved this project. I am here to learn more about Latinx family involvement and mathematic achievement at Howell Middle School's. I will be asking you a number of questions about your experiences and your perceptions of parent involvement when math is considered. There are no right or wrong answers – please just answer as honestly as you can.

I will be taking notes on your responses, as well as recording this interview. If at any point you would like me to stop recording, I would be more than happy to turn off the recording device. Just let me know. I will also provide you a copy of the transcript of our interview once it is transcribed. What questions do you have before we get started?

Appendix B
Interview Recruitment: Email Script

Include a thumbnail picture of researcher in the email.
Attach participant consent form.

Dear Math Teacher,

My name is Heather Pletnick and I am a former high school English teacher and middle school principal and I have had a passion about improving education for all children and working with and advocating for parents my entire career. Currently, I am a graduate student at the University of Arizona in the College of Education pursuing studies in education leadership and family studies. I am conducting a research study to gain information about parent involvement from the perspective of math teachers, school leaders, and Latinx parents of students who are successful in math classes in both advanced math and regular math classes at Howell Middle School.

It was suggested to me by your principal that you would be a good person to interview since you are a math teacher at this school and work with students in advanced or accelerated math classes.

This research study is voluntary, and you are under no obligation to participate. The interview will take approximately 30-45 minutes, be recorded and transcribed, and the information you provide will be confidential. Any identifying information for you and the school will remain anonymous. I plan on interviewing the second half of April/beginning of May, pending your schedule and the school site schedule.

Interview topics will include: communication styles of teachers and school leaders, perception of math communication and support, parent involvement and academic support, parent/teacher – parent/leader – teacher/leader interaction and communication.

I have attached a copy of the participant consent form for you to view. Please let me know if you are willing to interview with me and if you have any questions. You can reply to your principal or to me directly at hpletnick@gmail.com. Feel free to call or text me at 520-300-1674 should you have any questions or concerns before committing to the interview.

Sincerely,
Heather Pletnick

Appendix C
Consent to Participate in Research

University of Arizona

Study Title: Middle School Latinx Students and Parent Involvement: A Look at Mathematics Achievement

Principal Investigator: Heather Pletnick

You are being asked to participate in a research study. Your participation in this research study is voluntary and you do not have to participate. This document contains important information about this study and what to expect if you decide to participate. Please consider the information carefully. Feel free to ask questions before making your decision on whether or not to participate.

- The purpose of this study is to learn by the perception of math teachers, school leaders, and parents what Latinx parent involvement looks like for successful advanced math students.
- This study will help other districts and schools reflect and develop upon their parent communication and involvement strategies for all students.
- There are no expected risks to you as a result of participating in this study.
- You will not benefit directly from participating in this study.
- The interview will take approximately 60-90 minutes.
- You will not be compensated for your answers.
- The information you provide will be confidential.
- Your responses will be assigned a code number. The list connecting your name to this code will be kept in an encrypted and password protected file. Only the research team will have access to the file. When the study is completed, and the data have been analyzed, the list will be destroyed.

With your permission, I would like to audiotape this interview so that I can make an accurate transcript. Once I have made the transcript, I will erase the recordings. Your name will not be in the transcript or my notes.

Because of the nature of the data, it may be possible to deduce your identity; however, there will be no attempt to do so and your data will be reported in a way that will not identify you.

Information collected from you will not be used or shared for future research studies.

The information that you provide in the study will be handled confidentially. However, there may be circumstances where this information must be released or shared as required by law. The University of Arizona Institutional Review Board may review the research records for monitoring purposes.

For questions, concerns, or complaints about the study you may contact: ***Heather Pletnick***.
520-300-1674 or hpletnick@gmail.com

For questions about your rights as a participant in this study or to discuss other study-related concerns or complaints with someone who the researcher is not, you may contact the Human Subjects Protection Program at 520-626-6721 or online at http://rgw.arizona.edu/compliance/human-subjects-protection-program.

Signing the consent form
I have read (or someone has read to me) this form, and I am aware that I am being asked to participate in a research study. I have had the opportunity to ask questions and have had them answered to my satisfaction. I voluntarily agree to participate in this study.

I am not giving up any legal rights by signing this form. I will be given a copy of this form**.**

Printed name of subject	Signature of subject	Date

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