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Robert Earl Peters Jr.

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**A Study of African American Mathematics Achievement in High Performing and  
Marginal Performing Middle Schools in Texas**

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**A Study of African American Mathematics Achievement in High Performing and  
Marginal Performing Middle Schools in Texas**

by

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**Treatise**

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## **DEDICATION**

I would like to first thank GOD for giving me the opportunity to be accepted in a prestigious program at the University of Texas at Austin. I want to thank Him for continuing to strengthen me to complete my research and for His many blessings. I want to dedicate this paper to the three women in my life that have motivated me to strive for excellence. I want to start by dedicating this paper to my wife who always encouraged me to continue to push through adversity to accomplish my goals. She is more than a partner; she is my friend: she has loved me through the good, bad, and ugly times. My wife has been my rock that has taken more responsibility and disregarded her own ambition to provide me with time to chase my dreams. I want to take this opportunity to thank her so much for being a great wife and friend. I also want to thank my late mother who was the foundation of my work at the University of Texas at Austin. She prayed that I would be accepted to the university and on her deathbed made me promise that I would finish my dissertation. I want to dedicate this paper to her for all her hard work, support and unconditional love. Lastly, I would like to thank the new addition to our family, my baby girl, who is the motivational factor that pushes me to succeed on a daily basis. Her confidence and love makes me strive to be the best father and best person possible.

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A Study of African American Mathematics Achievement in High Performing and  
Marginal Performing Middle Schools in Texas

by

**Robert Earl Peters Jr., Ed.D.**

The University of Texas at Austin, May 2013

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**ABSTRACT**

Since the “Nation at Risk” report, there has been a social microscope on the growing achievement gap and factors that contribute to the increasing lack of academic improvement from African American students. In the State of Texas, there are no publicized examples of at-risk schools that have traditionally been successful with African American students in mathematics. Therefore, there was a need to investigate researched-based strategies that promoted African American student achievement in mathematics. This study utilized surveys, interviews, focus groups, and data to determine why specific middle schools in the State of Texas were successful with African American student achievement in mathematics. Data was collected from selected schools with academically successful African American students.

Pertinent information was gathered through the investigation of factors that fostered the success of African American students in mathematics. Organizational factors such as quality of leadership, positive school community structures, and instructional student leadership were examined to determine methods successful in motivating African American students to succeed in mathematics. Instructional factors such as teacher quality and teacher educational belief systems were also analyzed for components leading to successful performance of African American students in mathematics. The findings were that a progression of success factors must be present to ensure “exemplary” performance. Schools’ ability to facilitate positive organizational factors, instructional factors, group processes, and faculty sponsorship was more likely to help African American students perform better than their marginal peers. Additional research at the high school level was recommended to investigate strategies proved to be effective in raising mathematical achievement of African American students at middle schools.

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## CHAPTER I: PROBLEM STATEMENT

In 1983, the National Commission on Excellence in Education issued a publication entitled “*A Nation at Risk: The Imperative for Educational Reform*” which included research on a variety of standards in public education. Secretary of Education T. H. Bell was charged with building a work force for the future that would make education in the U.S. competitive with other nations around the world (National Commission on Excellence in Education, 1983). The 18-member commission researched all aspects of education in the United States and presented the findings to President Ronald Reagan. The commission’s attention focused primarily on urban centers and looked specifically at programs that were producing less than optimal results. The report researched patterns in all elementary and secondary settings and categorized their results into five educational components. The parameters of content, standards and expectations, time, teaching and fiscal support were the foundation of the report that was presented to the president (National Commission on Excellence in Education, 1983). Due to the nature of the findings, the commission entitled the report “A Nation at Risk” and noted the inconsistencies in the American educational system.

According to the National Commission on Excellence (1983), American public schools did not have basics standards, and that major attention was needed to focus on the following areas:

1. Content: The commission felt that a standard of (a) four years of English, (b) three years of mathematics, (c) three years of science and (4) three years of

social studies needed to be instituted to ensure that all students were appropriately educated in the American society.

2. Standards and Expectations: The commission found major gaps in achievement between high schools and college entrance exams. The findings concluded that there were major inflation practices that were prominent and created avenues in which the colleges and high schools could collaborate to ensure that a seamless transition ensured student success.
3. Time: The commission felt that a 7-hour school day and school year of 200-220 days were necessary to improve student achievement.
4. Leadership and Fiscal Support: The commission investigated the achievement gap between specified student populations such as gifted, economically disadvantaged, special education, African American, and Hispanic, and concluded that, in many cases, constitutional rights were in question. Their overall goal was to carefully investigate the disparity in learning and develop ways in which school districts could ascertain efficacy for all students.

These results sparked major controversy in the executive cabinet and a call to arms for a wave of accountability that would remain prevalent well into the turn of the 21st century.

One major topic of concern that would ring true in the content standards component was the apparent achievement gap that was prevalent across the urban setting. Particularly in mathematics, the current data suggested that African American students' national percentages lagged behind their peers. The decades that would proceed would be characterized by a host of studies that evaluated the underachievement of African

American students in mathematics, and analyzed a variety of factors that were associated with their lack of progress. Collectively, researchers attributed the achievement gap to a lack of economic resources, family background, school structures, and standardized testing (Kao & Thompson, 2003; Kim & Mandala, 2004; Swidler & Voss, 1996).

Organizations such as the National Council of Teachers of Mathematics (NCTM) have issued numerous publications committed to the development of strategies to empower educators to look specifically at African American students' progress as well as evaluate the continental divide between low-performing and high-performing schools. NCTM's notable Principles and Standards (2001) created a scaffold of learning for African American students by investigating curricula, and integrating instructional practices that are tailored for African American students. Ladson-Billings (1997) confirmed their work, and noted that African American students gravitate to approaches that engage thinking and encourage problem solving. During the past three decades, considerable effort has been devoted to evaluating the status of African American students' performance in mathematics and pervasive issues that have led to the decline of their success.

### **Statement of the Problem**

Since the "Nation at Risk" report, there has been a social microscope on the growing achievement gap and factors that contribute to the increasing lack of academic improvement from African American students. However, there are no publicized examples of at-risk schools that have traditionally and consistently been successful with

African American students in mathematics in the State of Texas. As the Texas Assessment of Knowledge and Skills (TAKS) is distributed each year, students of color are unconsciously expected to perform lower than their peers. In the wake of the State of Texas Assessments of Academic Readiness (STAAR) test, there exists a need to formulate research-based strategies that effectively promote African American achievement in mathematics. It is crucial to look specifically at schools that are making a difference in the State of Texas and evaluate practices in an effort to replicate them in other settings. It is also important to compare their methods with schools that are marginally performing in an effort to analyze the determinants for success. Secondary schools, particularly middle schools, are important to study due to the traditional small sizes of the schools and the team approach that is synonymous in the State of Texas.

### **Purpose of the Research**

The purpose of this study was to explore and evaluate educational structures that existed in a middle school setting that effectively empowers African American students to succeed academically. This study was conducted by utilizing a variety of surveys, interviews, classroom observations, and Texas Education Agency data to determine why specific middle schools in Texas are successful in African American student achievement in mathematics. The researcher investigated specific strategies that were facilitated by the school administration, teacher leadership teams, and classroom teachers that empowered African American students to succeed. Furthermore, the study highlighted effective practices and analyzed trends that can be used by other schools in the future. The schools that were selected provided comparative data that enables an understanding

of organizational and instructional characteristics related to the performance of African American students in mathematics.

The overall hypothesis of this study maintained that African American students that are taught in an effective organizational and instructional system that centers on collaborative “social” grouping, as well as high levels of faculty sponsorship perform better than their counterparts. Specifically, schools that have committed educators that connect and sponsor African American students as well as group them into social, leadership-based activities perform at a higher rate. One predominantly African American middle school that was researched is considered one of the highest rated schools in the State of Texas and has exhibited increasing positive trends annually during the past three years (2007-2010). Another school that was researched has performed marginally, particularly by its African American students in mathematics. A marginal school was chosen rather than a low performing school due to the idiosyncrasies that are indicative of schools that are low performing. It is important to look at two schools that have common attributes in hopes that the high performing characteristics can be replicated within a marginal setting.

### **Research Questions**

A compilation of surveys, interviews, and focus groups were used in this study to determine the structures and information exchanges that must exist in both middle schools that encourages or discourages African American students to succeed in

mathematics. The study also analyzed both schools' data and compared them with other Texas programs. This qualitative research addressed the following research question:

What organizational and instructional characteristics foster information exchanges identified by Texas middle school administrators, teachers, and parents that are perceived to improve urban African American students' mathematics achievement?

### **Rationale of the Study**

The importance and rationale of the study centered on three perspectives that motivate many educators to consistently persevere and continue to empower students to develop the intrinsic motivation to achieve. Personal factors, professional motivation, and lack of current literature are significant factors when evaluating strategies that impel African American students to excel in mathematics. The middle school is a critical time in students' lives that shapes their perspective of learning and thought. It is a time in which students begin social grouping and connect with individuals that influence the development of their future. As an inner city principal, the observation of thousands of students in the past ten years has yielded a consistent pattern of failure regarding the performance of African American students in mathematics.

As the Texas Assessment of Knowledge and Skills (TAKS) Mathematics results are distributed and the students who did not meet minimum standards are brought to the local cafeteria for an overview of options for tutoring prior to the upcoming test, the overwhelming number of African American students in the crowd resonates each year.

The disappointment is visible in their faces, and many students feel helpless. The same despondent look is often seen in the eyes of the educators as the lists are called, revealing the teachers' lack of confidence and savvy to produce an acceptable passing rate among African American students. A "revolving door" exists as African American students are farmed into 90-minute tutoring blocks and provided TAKS worksheets by teachers in an effort to prepare students for the next regimen of retests.

The apprehension from teachers and students throughout the prescribed "TAKS Camps" leads to frustration as teachers use rote learning techniques to "drill and kill" objectives into the students. While instruction is important, there is an absence of factors that motivate students. At the end of the day, there is an intense focus on superficial remediation efforts and no emphasis on the development of activities that support leadership within African American students. There is also a lack of responsibility between the teachers and students, which inadvertently communicates the notion that failure is an option. It is important to look at organizational and instructional structures within schools that foster the creation of collaborative grouping activities that motivate students to excel. It is also important to utilize characteristics that effective educators facilitate to ensure that African American students are successful.

The second rationale for this study involves a professional aspect that has been pervasive throughout the last ten years in education in Texas at the secondary level. There is a distinct lack of "Recognized" and "Exemplary" middle schools that comprehensively integrate all levels of students and are predominately African American.

The Texas Education Agency's annual Academic Excellence Indicator System (AEIS) report provides an array of assessment and demographic data to all schools throughout the State of Texas. An analysis of the information confirms that, during the past ten years, many middle schools that are predominately African American have traditionally been rated either "Academically Acceptable" or "Academically Unacceptable." There are only a few comprehensive schools within the state that are high performing middle schools. The lack of positive examples is a perplexing phenomenon that provokes an investigation of the paradigms and strategies implemented at these specified schools that influence school wide excellence. Therefore, it was imperative to examine two middle schools to determine what structures are present that perpetuate success for African American students in mathematics.

The first step involved the investigation of administrative structures that existed in the learning community and the longevity of these successful scaffolds. The establishment of professional learning communities at the teacher level and the perpetuation of collaborative student grouping were analyzed to look specifically at information exchanges in which the school's administration fostered success. The second step revolved around the quality of teaching within the classroom and the strategies in which educators used their content knowledge, belief systems, and school resources to create networking opportunities that develop future planning for African American students. Lastly, a parent component was necessary to understand the entire scope of influence that the school made on the outside community. Interviews with parents were

important to connect how the establishment of social grouping and faculty sponsorship was translated by the students to their parents.

### **Significance of the Problem**

National and state trends communicate a disparity in the mathematical achievement of students from diverse backgrounds (Ladson-Billings, 1997; Lubienski, 2001). The National Council of Teachers of Mathematics (1989) contends that “Equity does not mean that every student should receive identical instruction; instead, it demands that reasonable and appropriate accommodations be made as needed to promote access and attainment for all students” (p. 11). It is apparent that students of color have several disadvantages, especially socio-economic conditions that inhibit their academic achievement. Educators across the State of Texas have the ultimate responsibility to enhance and understand the instructional needs of African American students (Gay, 2000; Howard, 2001). Educators must incorporate the type of strategies that build organizational and instructional grouping, and motivate as well as empower learning.

Researchers, Stigler and Hiebert (2004), contended that many educators have produced lackluster results in regards to African American students in mathematics, and the performance levels show slight growth annually. Middle school results indicate that only 40% of African American students perform at or above grade level (NCES, 2009). The data suggest that there is a distinct need to identify effective teaching strategies to engage African American students as well as provide significant implications to the welfare of the African American community in an ever-changing economy. In 1988, the

Mathematical Sciences Education Board (MSEB) surveyed educators across the country regarding the area of mathematics and contended that mathematical development was a precursor or filter for talent.

MSEB (1988) also stated that students who excelled in mathematics and science would be “the ablest few for leadership” (p. 341). The U.S. Bureau of Statistics (2010) has projected staggering disparities between White and African American males in regards to their talents and recruitment in career fields that center on mathematics and science. According the U.S. Bureau of Statistics (2010), only 2% of African Americans were currently in the labor force in fields that mandated a mathematics background. The U.S. Bureau of the Census (2010) concluded that African Americans received only 1% of doctorate degrees in mathematics. The U.S. Department of Education (2005) presented data that provided a direct correlation between mathematics and future employment. Students who excel in mathematics will be extremely marketable in the future workforce, and they will be equipped with processes that enable them to become leaders. The implications of this information communicate that African Americans will not be able to compete in a global economy and that a transformation must exist in teaching practices to mobilize efforts that focus on mathematical achievement. The NCTM (2000) concluded that local state agencies would need to:

[P]ursue an agenda that includes re-crafting the standards and upgrading the assessments that guide what happens in our classrooms, deploying the talents of our educators more effectively, and aligning our schools and school systems with the task of bringing the diversity of American students to high levels of math and science learning. To make the most of our efforts, we will need to structure all those changes to leverage and reinforce one another for national impact and to learn through ongoing research. The Commission recommends that, as a guiding

principle, we take every opportunity to build math and science learning into all school reform initiatives, at every grade level, for every student. (p. 1)

The significance of this study suggests that it is paramount to the vitality of the African American community that positive exemplars are highlighted to show effective strategies that encourage academic achievement in mathematics.

### **Method**

The purpose of this research was to explore the variety of strategies that middle schools in Texas facilitate that increases the achievement in mathematics among African American students. Researchers Johnson and Kritsonics (2006) asserted that a variety of achievement gaps exist among African American students and their peers; however, the largest gap is in the area of mathematics. Therefore, it was important to look at two schools to determine the comprehensive implementation of strategies that positively affected the performance of African American students, in the State of Texas.

This qualitative research integrated interviews, focus groups, and surveys that were created for school personnel in both Andrews Middle School and Jackson Addition Middle School. The names of the schools, districts, and communities that were researched were changed due to confidentiality and International Review Board specifications. Surveys were created for principals, leadership team members, teachers, and parents to look specifically at the information exchanges at the middle schools and ascertain how they foster leadership grouping through faculty sponsorship. Direct interviews were conducted with all participants at the specified campuses that focused on the implementation of developmental strategies within the schools.

## **Limitations and Delimitations**

There are a few limitations within the study that required analysis and prioritize the elements of the research when investigating strategies for African American students at the middle school level. One limitation of the study revolved around the exclusivity of African American students within a predominantly African American school. Due to the changing demographics in the State of Texas, there are few cases of predominantly African American student populations at the secondary level. Many at-risk middle schools within the state have multiple populations that create an extremely diverse demographic picture. One limitation of the study occurs in finding the location of an at-risk middle school in the State of Texas with a student body that is predominantly African American. The Texas Education Agency AEIS Comparative Data (2010) was used to indicate a list of middle schools that met the criteria and Andrews Middle School was considered one of the most successful predominantly African American schools in Texas.

The second limitation of the study included the mathematical performance of the students within the schools that were predominantly African American. Due to the specificity of school characteristics and how they influence the outcome of student achievement the absence of a larger comparison group is a limitation of the study, due to the specificity of school characteristics and how they influence the outcome of student achievement. In short, the Texas Education Agency (2010) published Academic Excellence Indicator System (AEIS) reports that indicated two successful predominantly African American middle schools in the state. Therefore, a limitation existed due to the

lack of exemplars within the State of Texas within the performance of mathematics. Despite the hindrance of a larger sample size, it still proved important, however, to use another school that had a diverse population of students to compare and examine best practices that are prevalent at both organizations. Despite the school's overall performance, the research targeted indicators that encourage African American students to succeed in mathematics.

Consequent limitations centered on the time frame that was used as a focal point throughout the study, and the data that were analyzed to show positive trends. The 2010-2011 school year was used as a reference as well as the Texas Assessment of Knowledge and Skills data. State mobility trends within the state showed the possibility of teacher and administrator movement to other positions within or outside the district (Texas Education Agency, 2010). Student mobility patterns also suggested that the school's demographics could have changed slightly within the past year. Another factor or limitation requiring attention revolved around the data used throughout the study. The Texas Assessment of Knowledge and Skills assessment data was exclusively used and compared within this study. End of course exams or advanced placement scores were not used within the research, which could infer a limitation due to the analysis of only one sample of data.

Lastly, the study focused on middle school students and did not consider African American students who are at the high school level to show similar characteristics at the secondary level in regards to mathematics. At-risk secondary schools share common indicators such as Socio Economic Status (SES), discipline percentages, performance

issues; therefore, patterns could exist that communicate a systemic problem in the facilitation of effective strategies that encouraged African American students to be successful in mathematics. However, middle school is the time in which students socially connect to groups and begin to plan their future endeavors. This study's emphasis on the creation of organizational and instructional structures that foster effective collaborative networks and faculty sponsorship is crucial at the middle school level due to the socialization of students.

### **Definition of Terms**

*Academically Acceptable:* A rating that suggests that the school or district has performed to the acceptable content area standard of 70 percent on English Language Arts, 55% in mathematics and 50% in science on the annual Texas Assessment of Knowledge and Skills test (TEA, 2010).

*Academically Unacceptable:* Refers to schools that have performed in the lowest percentages as specified by the Texas Education Agency's assessment standards. Generally, each year sanctions are implemented by the State of Texas to encourage districts to mandate extreme measures to ensure improvement in student performance within the specified school (TEA, 2010).

*Achievement:* The successful completion of a process that requires an amount of skill within a content area (The American Heritage Dictionary, 2000)

*Achievement Gap:* The disparity and differentiation of expected academic skills between cultural subgroups of comparable ages over a period of time.

*African American:* A person that traces ancestry to Africa [and whose descendants were considered slaves]. Specifically for this study, the students that will be used consider themselves to be African American. Their heritage will revolve around the tenants of American oppression rather than descendants of Africans that voluntarily became United States citizens.

*At-Risk Schools:* A school that has a high percentage of minority students that have traditionally performed below the state assessment standard. Typically, many at-risk schools have high percentages of students that participate in free and reduced lunch programs based on the family's income.

*Black:* A term that has defined African Americans in America throughout the 21<sup>st</sup> century (Davis, 2001).

*Culture:* A variety of shared beliefs, customs, and values that are indicative of a specified group of individuals that is communicated systematically from one generation to another through group behaviors (Banks, 1988).

*Cultural Pedagogy:* The process of teaching students through a multi-step art of using cultural based experiences to make the content relevant and applicable for student learning (Gay, 2000).

*Diversity:* The incorporation and appreciation of a variety of cultures within the instructional scope as it relates to race, gender, age, and belief systems (Banks, 1988).

*Dyadic Processes:* Communicative processes that focus on the importance of a relationship between the leader and an individual within the organization (Yukl, 2006).

*Effective Leadership Practices:* Behaviors exhibited by leaders of the school community that have been assessed and perceived to increase the academic achievement of students.

*Grade Placement Committee:* A committee created by the Texas Education Agency through the Student Success Initiative that assesses the performance of students on the Texas Knowledge and Skills Math and Reading test at the third, and eighth grade, and determines if the students meet the eligibility criteria to pass to the next grade level (TEA, 2001)

*Marginal School:* a school that has traditionally scored between *the “Academically Unacceptable” and “Academically Acceptable” standards over a five year range.*

*Middle School:* Schools that the Texas Education Agency specify as containing Grades 6 through 8 (TEA, 2001).

*Minorities:* Ethnic groups that are traditionally characterized as not of Anglo descent.

*National Council of Teachers of Mathematics (NCTM)* is a national organization that researches prevalent trends in mathematics and provide monthly publications on current research strategies that improve achievement.

*Processes:* The facilitation of a variety of activities that leads to the evolution and change of an entity.

*Recognized:* A rating that communicates that a student's performance at the local school or district level has received recognition due to meeting the performance standards of 75 percent in all content areas and within all subsequent sub groups.

*Retention:* The concept of retention in this study analyzes the percentages and processes in which districts across the State of Texas and the country facilitate to retain effective school leaders and practitioners.

*School Climate:* The perception held by administrators, teachers, students, and parents in regard to their school environment, and the established working relationships within the school organization.

*School Community:* A group of school leaders, teacher, parents, and community members that collaborate and facilitate the implementation of education values on the student body.

*School Culture:* The beliefs, values, and rituals that are shared by all participants in a school organization (Deal & Petersen, 1993).

*Socio Economic Status (SES)* refers to the categorization of students by family income levels based on their eligibility for statewide free and reduced lunch programs.

*Structures:* Internal constructs that are created to build specified characteristics of the organization.

*Subgroup:* A group of people characterized by shared beliefs that differ from the majority (Banks, 1988).

*Texas Assessment of Knowledge and Skills (TAKS)* is an annual assessment given by the State of Texas that assesses a student's mastery of the Texas Essential Knowledge and Skills (TEKS) that are prescribed learning objectives at each grade level.

*Underrepresented Group:* Students that traditionally perform lower in state assessments than their counterparts by percentage and rank.

## CHAPTER II: REVIEW OF THE LITERATURE

During the past three decades there has been an emphasis on the academic performance of African American students in mathematics, and the growing “achievement gap” across the country. A variety of studies have analyzed and examined reasons why African American students continue to perform lower than their peers. Buzz words such as Pygmalion (Shaw, 1931), Stereotype Threat (Steele & Aronson, 1995), and Cultural Relativism (Tilley, 2000); have been theorized to describe why thousands of African American children lack basic skills in mathematics. In 2009, the National Assessment of Educational Progress concluded that, at 8<sup>th</sup> grade, there existed a 31-point national gap between African American and White children (NCES, 2009).

Although the gap decreases slightly each year, the failure to observe substantial growth is a concern. Researchers have categorized the problem into a variety of social, political, organizational, and instructional factors to carefully bring to light the inequities that exist in the American society in relation to African American student achievement in mathematics. Ogbu (1998), Ladson-Billings (1995b), Martin (2000), Gay (2000), and the National Council of Teachers for Mathematics have chronicled the overarching socio-political and instructional issues that exist, and maintain that a status quo standard exists in which African American children are consistently unsuccessful on national and state assessments in the subject of mathematics.

Studies have also been initiated that trace and connect that lack of performance to high school dropout (Texas Education Agency, 2010), criminal behavior, and the

monetary impact of African American achievement on the economy. Based on the literature, African American children have increasing deficiencies in mathematics at the beginning of and throughout their educational experience. The percentages decrease as the children matriculate through school and become targets for social problems that plague the communities in which they reside (Ladson-Billings, 1995). Thirty years of research has concluded that African Americans are at a disadvantage in all academic areas, and particularly in mathematics. However, there has been little research concerning the success stories in which African American students perform at the levels of or higher than their peers. There has been less research done on high levels of African American student performance at the secondary level.

It is important to investigate the factors that are associated with successful performance with the objective that it could be replicated. There has been a lack of documented research that analyzes variables that are implemented for children of color to be successful. Additionally, there are few examples that highlight positive structures for success. Chapter II includes a review of extensive literature that not only examines the problem that exists, but also looks at the strategies that are initiated that build a positive scaffold for success. There is a distinct need for additional research that not only acknowledges the deficits in mathematics achievement, but also investigates strategies in all areas that promote recognizable academic performance.

The literature review will provide information in order to investigate factors at the school level that foster systems for success. Organizational factors such as quality of leadership, positive school community structures, instructional student leadership, and

extra-curricular activities were reviewed to bring to light examples of incorporated collaborative grouping to impart information to African American students to foster their success. Instructional aspects such as teacher quality and teacher educational belief systems were expounded on to reveal how educators sponsor the efforts of African American students that lead to their successful performance in mathematics. Chapter II concludes with the factors that differentiate between high-performing schools and marginal-performing institutions, as well as the infusion of the theoretical framework of social and cultural capital theory with the Treisman model in an effort to investigate indicators identified as being related to success. Each section begins with the past literature on the topic, and a search for strategies that promote success.

### **Organizational Factors that Promote Success**

Pollard and Durodola (2003) identified a variety of factors associated with high-performing secondary schools. The researchers investigated a variety of organizational factors that significantly impacted students' academic achievement. Specifically, there are distinct organizational structures that encourage and discourage student performance, and this section of the literature review attempts to highlight positive components that motivate students to be successful. Organizational structures such as quality of leadership, positive collaborative school culture, instructional student leadership, and extra-curricular activities are analyzed to generate examples of the programmatic components that influence collaborative networking and grouping in African American students.

## **Quality of Leadership**

The accountability era has transformed school leadership and mandated that principals are equipped with a variety of skills to empower excellence. School systems across the country are plagued with extreme social, economic, and curricular challenges. The organizational environment is evolving on a daily basis, and school administrators must keep abreast of the current reform while simultaneously addressing the needs of their school community. Researchers have concluded that there is a systematic method to the craft of school leadership and have categorized leadership effectiveness into dimensions or facets. Therefore, it is imperative to investigate a group of researchers that have analyzed leadership and characterized concepts into best practices that are facilitated by effective administrators. This section specifically examines the work of Portz, Stein, and Jones, as well as the quality leadership concepts of Gary Yukl. It looks at the political frame of Portz, Steing and Jones and investigates the varying processes that Yukl affirms as indicative of successful leaders. It concludes with a series of studies on specific leadership traits that are exhibited by leaders that are making a difference in high poverty, urban areas. School leaders must be able to create organizational structures that perpetuate leadership grouping as well as networking to create information exchanges within the school (Yukl, 2006).

In their book, *City Schools and City Politics: Institutions and Leadership in Pittsburgh, Boston and St. Louis*, Portz, Stein and Jones (1999) researched three large urban cities to investigate specific characteristics that were indicative of successful school operation. The researchers maintained that an educational leader's role revolved

around three components: educational, managerial, and political arenas (Portz, Stein, and Jones, 1999). In their comparison of the three cities the researchers analyzed the political factors that were associated with educational reform and connected effectiveness to experienced school leadership. In regards to this study, it is important to evaluate the political role of effective leadership and carefully investigate how it is connected to the development of an effective organization.

Portz et al. concluded that school leadership is centered on varying political aspects of the institution. As the educational terrain evolves, the school leader must have an understanding of the changing patterns and trends in the school community, and must be attuned to the vision of district leadership as well as the direction of the parents and community. The principal's goal is to ensure that all agendas are fused together to effectively educate students within the school. The art of collaboration is the key for school leaders based on the considerable amount of participants that are important to the organization (Deal, 1993). Communication and transparency are critical in establishing relationships with district and community stakeholders. The political environment is a substantial part of the principal's role due to the resources and social networks that can be created to assist the school community.

Yukl (2006) asserted that leadership quality is paramount, and the principal must possess a variety of attributes to effectively encourage achievement. Yukl has researched school leadership for many years and provides a wealth of information regarding the indicators of quality leadership. In his book, *Leadership in Organizations*, Yukl analyzes the concept of leadership and the characteristics of effective school administrators. His

work analyzes leadership theory and provides readers with a variety of concepts that are attributed to effective leadership. Yukl stated the following:

Leader effectiveness is occasionally measured in terms of the leader's contribution to the quality of group processes, as perceived by the followers or by outside observers. Does the leader enhance group cohesiveness, member cooperation, member motivation, problem solving, decision-making, and resolution of conflict among members? Does the leader contribute to the efficiency of role specialization, the organization of activities? Does the leader improve the quality of work life, build confidence of the followers?" (p. 28)

Yukl (2006) concluded that there are multiple measures of effectiveness and expounds on the theories of Portz et al. (1999), by generating specificity into the level of group processes that are prevalent in effective leadership.

In addition to the dimensions of Portz et al. (1999) work, Yukl focused on the mastery of four processes that must be perfected by school administrators: (a) a principal must understand intra-individual, dyadic, and organizational grouping processes as well as the connection of each to the organization (b) an educational leader must be able to identify personal strengths and constraints that directly impact the school organization as a whole; and (c) the consistent intrinsic examination of a leader's traits leads to a paradigm shift and the development of a skill set that fosters system-wide student achievement. The leader's self-management and self-efficacy is directly connected to the growth of the organization (Yukl, 2006).

Dyadic processes focus on the importance of a relationship between the leader and an individual within the organization. A principal's understanding of all stakeholders is a fundamental concept that must be developed through cooperation and trust. Leaders must understand the strengths and areas of growth within each member of the

organization, and work over a time period to ensure that the participant makes a series of valid contributions to the organization. Dubrin (2007) asserted that both leaders and followers are valuable to the success of the organization. They are internally connected and depend on one another to be successful. Yukl (2006) built on the dyadic structures by emphasizing the leader's mastery of group and organizational processes. According to Yukl's research, a leader must recognize informal and formal leaders within a group and create collaborative opportunities that foster a sense of ownership and understanding of the task. As applied to schools, this recognition must also be encouraged within students through the development of collaborative grouping. The acquisition of cohesiveness is directly tied to the performance of the entire organization and influences each group to work together to achieve organizational success. Based on the research, leadership is an art. It is a method in which individuals use political concepts and embed them with leadership strategies (intra-individual, dyadic, group, organizational) to generate success for their school. The skill of building collaborative structures is a key attribute for effective administrators. The work, however, starts with the creation of positive school community connections via information that fosters a sense of ownership and networking.

### **A School-wide Vision**

The school leader is an important facet of all positive school processes. The literature has provided detailed characteristics and behavior that is distinctively connected to the academic growth of students. Consequently, a leader who positively impacts the achievement of African American students in mathematics must also build a program

around specific plans that promote success. One of the elements that establishes a framework for learning is the ability of the leader to create and communicate a cohesive vision for the school. Muncey and McQuillen (1993) investigated structures that were indicative of reform within eight schools, and concluded that the restructured schools were not successful due to the lack of coherence from staff members. The teachers did not have ownership of the program; therefore, the organization was disjointed and unsuccessful.

A clear and coherent vision is the fundamental element by which all transformation begins within a school organization. Bennis and Nanus (1985) stated that a leader must

Choose a direction; a leader must first have developed a mental image of a possible and desirable future state of the organization. This image, which we call a *vision*, may be as vague as a dream or as precise as a goal or mission statement. The critical point is that a vision articulates a view of a realistic, credible, attractive future for the organization, a condition that is better in some important ways than what now exists. (p. 89)

The process of communicating the vision and creating opportunities for ownership are the important premises that must be mastered to perpetuate improvement. Edmonds (1982) pioneered research in school vision and created a list of principles for school leaders. His second principle centered on the requirement of a clear communicated vision for teachers and staff. He claimed that due to yearly initiatives, many teachers become disengaged and isolated. The clear, structured communication of a vision or purpose must be understood by all stakeholders in a school community (Edmonds, 1982). Deal and Peterson (1993) confirmed the work and added that the vision must be engaging and intertwined with values and goals. In their article,

“Expecting Success” (2002), researchers at the Charles A. Dana Center and the Council of Chief State School Officers observed five high-performing schools and attributed success to the method in which the leader orchestrated a clear, concise vision as well as the facilitation of a cohesive, collaborative community. All school community members must believe that they are actively participating in the achievement of the organization’s goal.

### **A Positive Collaborative School Culture**

Collaboration is mentioned in various leadership studies because of its direct impact on a positive school culture and the facilitation of an organizational vision. However, it is multi-faceted and includes a level of compromise and shared decision-making by the principal and teachers. The leader must carefully orchestrate the facilitation of the vision through a push and pull process that encourages change.

Sergiovanni (1991) stated:

One theme emerges from this discussion of the process of change. Though principals are important and their visions key in focusing attention on change and in successfully implementing the process of change, what counts in the end is bringing together the ideas and commitments of a variety of people who have a stake in the success of the school. As this process unfolds, principals can often find themselves on thin ice. They need to be clear about what it is that they want, but cannot be so clear that they are providing people with road maps. They need to allow people to have an important say in shaping the direction of the school and deciding on the changes needed to get there, but they cannot be so detached that these individual aspirations remain more rhetorical than real. (p.83)

Shared decision making is an attribute that is a necessity for urban school leaders. “The Bay Area Reform Collaborative” conducted under the leadership of Copeland (2003), was a longitudinal study on leadership attributes that promote success in economically disadvantage areas. One underlying factor that contributed to success was shared

decision making. According to Copeland, shared leadership encouraged collaboration and allowed staff members to “sustain” their progress despite local and district roadblocks. He also found that as teachers and administrators collaboratively created systems, they in turn transformed the culture and climate of the school.

Brown and Medway (2007) found that teachers that effectively educate African American students were cohesive in nature and worked collaboratively to share strategies that encouraged success. The collective sharing of ideas, values and beliefs are the true measure of a productive school culture (Cotton, 2003). Bandura (1986) described a positive school culture as “a collective efficacy” in which all members of a school organization work together for a common goal. Within the school culture, there are organizational aspects such as support, rapport, collegiality, respect, and accountability that are also important to the achievement of academic goals (Brown & Medway, 2007). All members of the organization believe that students, despite race can be successful.

In their study, “Successful, Texas School Wide Programs” (1997), researchers at the Charles A. Dana Center examined 26 schools throughout the State of Texas, and maintained that effective administrators create a sense of family in which all stakeholders feel connected. Leaders create mottos such as “We’re family here,” or “These are all my children,” to encourage dedication to the students and the school community. The study maintained that school leaders communicate to all members of the school community the importance of participation in the campus processes. The theme “Everyone is Part of the Solution” is deemed necessary for all students to be successful (Charles A. Dana Center, 1997). A strong sense of trust, beliefs and collaboration resonates due to the investment

by the leader. In short, a strong vision that is collaborative and upholds tenets of shared leadership and decision-making influences a positive school culture that believes that students can be successful and perpetuates academic excellence.

### **Instructional Student Leadership**

The creation of student leadership programs is a critical element in motivating African American student academic success in mathematics. Middle school is a developmental time in students' lives--a time in which group connection is an essential element of the school environment. Administrators who build student social networks in which students are able to communicate freely about leadership, competition, and future opportunities inadvertently increase overall academic success. Studies show that administrators that create enrichment programs and extra-curricular opportunities that revolve around students' interests and talents, motivate student participation in the organizational processes that advance student learning (Charles A. Dana Center, 2002). There is a need, particularly in the schools with an African American student majority, for extensive programs that provide social networking, competition, and leadership for students.

In addition, the implementations of instructional leadership programs that facilitate college readiness in African American students are vital to their achievement in mathematics. One program that has been under contention in the past thirty years is advanced placement courses. Dye and Johnson (2006) stated that through analysis of census data from 1994-2004, that African American students are less likely to participate in advanced placement classes. Dye and Johnson concluded that less than 9% of African

American students were enrolled in advanced placement classes. Ford's (1996) twenty-year study of gifted instruction affirmed that African American students were consistently underrepresented in advanced placement and gifted instruction. Ford (1996) stated that, despite the African American overall population percentage (13.8%), only 6.4% of secondary students took advanced placement courses. They attribute the low African American participation to socioeconomic status, as well as to the parents' lack of knowledge concerning the benefits of AP courses.

Gifted programs and advanced placement courses are definitely beneficial to the instructional development of students. Accomplished students enrolled in advanced placement classes have a greater chance of enrolling in college (Adelman, 2006). These students are exposed to the most current and challenging curriculum, and often receive instruction from the most experienced teachers within the organization. Clotfelter, Ladd, and Vigdor (2005) stated that most African American students receive instruction from novice teachers in a lower track of study, while experienced educators teach advanced placement courses. These are disadvantages that contribute to the status quo, and annually impede African American student achievement in mathematics and other content areas. There are obvious barriers, and researchers have compiled years of study that detail the deficiencies (Baldwin, 1994; Ford, 1998, Frasier & Passow, 1995). However, there is a distinct need to increase the number of African American students in advanced and gifted services, and make parents aware of the benefits of participation for their children.

Klopfenstein and Thomas (2006) studied the effects of advancement placement programs on high school seniors, and concluded that the emphasis on high expectations empowered student's readiness for college. Likewise, Greenberg (1991) stated that students that participated in AP classes were able to make the transition to college due to the level of preparatory work in high school. Luce and Thomson (2005) affirmed the research by stating that the rigorous curriculum that advancement placement classes provided was a precursor for successful college coursework. When African American students are involved in instructional leadership programs like advanced placement courses, they are motivated to continue, and in turn, become successful. Leadership and the understanding of the importance of certain types of curricula are connected and instrumental to the success of African American students.

### **Instructional Factors that Promote Success**

Organizational factors are the foundation of school practices. All additional initiatives are built and interconnected to the fundamental vision and mission of the school community's organizational structures. The literature has specifically designated a number of structures that must exist to ensure that African American students are successful in mathematics. It is, however, imperative to begin to look at instructional factors to analyze practices within the classroom that promote successful grouping and faculty sponsorship. The distinct systems and processes that teachers implement should be highlighted to specify relevant strategies for African American students. This portion of the literature review is divided into sections that present an overview of research-based practices and current data to examine the importance of teachers in the establishment of

networks that lead to success. The study will reveal successful teaching practices that communicate the level of commitment that is necessary from educators to ensure that African American students are successful. The researcher concentrates on processes such as teacher instructional quality, teachers' educational belief systems, and conclude with a list of research-based strategies that improves achievement among African American students.

### **Teacher Quality**

The quality of teaching is a determinant for success for all students. Skills that are evident in effective teachers, include: the command of the subject area, awareness of the student's culture, high level of expectations, a plethora of motivational techniques, as well as, a positive attitude and belief system regarding students. Longitudinal data show that students that are taught by effective teachers for consecutive years show substantial improvement in achievement (Haskins & Loeb, 2007). Consequently, the impact of ineffective teachers has a damaging affect on students' learning (Marzano, 2004). The quality of teaching matters (Hanushek, 2009); therefore, it is important to review the research on the current quality of teaching that is pervasive in inner city education, and make recommendations on what modification must be implemented to ensure that African American students are successful in school.

### **Command of the Subject Area and Culture**

The current situation that plagues economically disadvantaged areas is the lack of experienced and qualified teachers (Boyd, Grossman, Lankford, Loeb, & Wycoff, 2009). In many secondary schools, a large portion of the faculty is inexperienced and lacks the

tools necessary to effectively educate at-risk students. The National Center for Education Statistics (2009) reported that the lack of experienced teachers increases annually within the inner city, which directly affects the growing achievement gap. Experienced teachers often teach advanced placement courses or seek employment in suburban areas that do not require the ongoing challenges that are prevalent in economically disadvantaged areas (NCES, 2009). Consequently, African American students are left with inexperienced teachers that must master a variety of skills within a short period of time. This trend creates a culture of inner city classrooms that are plagued with classroom mismanagement, low-level instruction that is inconsistent, and a lack of expectations (Irvine, 2002). Three decades of research has dissected the deficiencies and examined characteristics that attribute to declining scores within the classroom of African American students. There are, however, current trends that are specifically gauging characteristics and techniques that are indicative of success, and provide a framework for research and a list of factors promoting academic growth.

Hutchinson and Padgett (2007) defined good teachers as “individuals that master the art of providing information to student’s memory in a practical method” (p. 22). In their research, they specifically studied teachers who had a deep knowledge of the content, and implemented processes to effectively educate their students. A wealth of knowledge of the curriculum was a precursor in the development of successful students. Teachers that were more experienced in the subject matter had higher achievement scores (Ware, 2006). Studies show that the quality of instruction begins with the command of the subject matter, particularly at the secondary level (Zevenbergen, 2000). Teachers that

teach algebra, calculus, geometry, and trigonometry must be immersed in the content, and display an elaboration of technique to build understanding for students.

Teachers must also have an in depth understanding of the students' culture and believe that all students can be successful. In the case of African American children, culture is the premise and foundation of behavior, and is the last strategy that is noted in the research. The emphasis on culture as a way to motivate students has been researched and is the nucleus of culture relevancy. Studies in mathematical learning have shown the positive effect of the ability to integrate student linguistic and cultural experiences as a support for learning within the classroom (Gay 2000). Ladson-Billings (1995b) pioneered efforts in understanding the connection between student learning and cultural attributes. Her work maintained that African American students benefited from culturally relevant pedagogy and learning (Ladson-Billings, 1995b). Her qualitative work centered on interviews and observations conducted on a number of focus groups comprised of successful teachers. She concluded that teachers that were effective with African American students connected good teaching strategies with a host of culture responsive strategies. Her work became the foundation of future research on the impact of culture within the classroom.

Current researchers have built additional elements such as cultural brokering, and culture specific pedagogy (Leonard, 2008). Others have connected the importance of relationships as a tool to motivate students (Howard, 2001). However, the common denominator resides in the increased impact of culture in the facilitation of mathematical processes. It is important that teachers understand students' backgrounds, and offer

avenues in which students can collaboratively work together toward instructional goals. An educator must be immersed in the students' culture to know specific deficits that are apparent and build classroom programs that target their areas of growth. There are varying levels of knowledge and expertise required of teachers that enable them to effectively teach African American students at high levels. Command of the subject matter and student culture is essential and a foundational principle for progress; however, the teacher's level of expectations is paramount for student success.

### **Level of Expectations**

Another indicator that determines the quality of teaching is the level of expectations that teachers impress upon the students within the classroom. Research shows that a teacher's primary role is to motivate students to achieve through a series of positive activities that empower learning (Nasir & Cobb 2007). Effective teachers ensure that their students are learning through a set of challenging activities that motivate students to manage their learning. Studies have shown that students perform to the level in which they are expected to perform (Nieto, 2001). High expectations are a philosophy that effective teachers possess, which is often tied to the teacher's purpose and belief systems. Research confirms that experienced educators that continue to successfully teach in economically disadvantaged areas believe in and maintain high expectations for their students (Irvine, 2002).

Despite the students' background or experience, teachers expect the best from them, and do not offer excuses for underperformance. In a study of the St. Louis Public School District, Reese (2005) affirmed that the facilitation of high expectation strategies

led to increased academic success, and changed the climate in many schools. Love and Kruger (2005) concluded their research with similar results, revealing that the teacher's belief systems dictated a transformation in student achievement. The study maintained that the belief in high expectations coupled with positive interaction perpetuated academic success for students. Students that felt that teachers care and communicate with them were more inclined to work extremely hard in their classrooms.

The consistency of high expectations and belief in all students is an attribute that is imperative for success. Students in an environment of high standards most often respond to the daily demand of producing their best. This method creates a culture of strong work ethic and fidelity to the habit of achievement (Irvine, 2002). Teachers who were effective in at-risk centers aggressively pursued high expectations. This “no-nonsense” type of structure developed an air of respect from the students and demanded certain behavior (Banks & Banks, 1995). Students understood that the minute that they entered the teacher's classroom that they were expected to work hard (Monroe & Obidah, 2004). Effective teachers that remained in economically disadvantaged areas were also highly regarded by parents. As a result, parents respected the educator's instructional endeavors and requested that their younger children be placed in the teacher's classroom when they arrived at the secondary level.

Research indicates that high-poverty schools that are successful in Texas are comprised of teachers that have a “no excuses” approach to student learning (Charles A. Dana Center, 1997). Educators believe in motivating students to do whatever is necessary to be successful. Students understand that a high level of expectations is

required to be a part of the teaching community (Charles A. Dana Center, 1997). This quality of teaching is a fundamental characteristic that determines learning for all students. Successful teachers believe that through their work, students will be successful despite their background. Chase, Germundsen, Brownstein, and Distad (2001) agreed that teachers who maintain high expectations and efficacy do not “give up” on economically-disadvantaged students and work hard to ensure that they achieve incrementally.

Characteristics such as content knowledge and high expectations are essential elements of good teaching; however, there are a series of “natural attributes” that are connected to teacher quality in at-risk settings. Hanushek (2009) described the teacher’s ability to adjust to a variety of learning styles and motivate students as indicators of effectiveness. According to Hanushek, this ability to adjust and motivate students with relevant examples that impact learning is a natural ability that great teachers possess. Teachers use intrinsic and extrinsic motivation techniques to communicate learning objectives through the use of charisma and enthusiasm, which often engage students and ensure that they are interested in the content area.

### **Motivational Techniques**

Tomlinson and Demirsky (2000) described how student interest and the ability of the teacher make the information “appealing, intriguing, relevant, and worthwhile” (p. 3); the constant connection of the information to emotions and relevant past experiences shapes the students’ interest to the content. Effective educators have a distinct ability to tie their knowledge of the content area with critical thinking strategies

that captivate their students and make the subject matter interesting. Students are captivated and enjoy the learning process, which improves achievement (Yair, 2000).

Schweinle (2006) affirmed the research and studied how students that are motivated take control over their own learning, and thus learn how to self-manage their own cognitive constructs. Lastly, research shows the importance of student grouping in the educational process. When students are able to collectively generate ideas and plans as a group, it fosters collegiality and teamwork. The literature review has indicated that in many at risk areas there is a distinct lack of efforts to create grouping opportunities within the organization and classroom that encourage leadership and social networking for students. Consequently, teachers must be abreast of the students' deficits and build platforms of learning that maximize student areas of growth. Teachers must be truly connected to students and develop an understanding of their strengths as well as deficiencies. Educators must sponsor their children and build bridges of learning for their students. It is more than experience and strategy that stimulate academic progress; it is a philosophical belief system that motivates teachers to empower student learning. This sense of purpose or belief system is critical when examining teacher quality.

### **The Texas Context**

The literature review has provided an array of positive characteristics that must be exhibited by an organization to successfully motivate African American students in mathematics. The study has also provided conclusive evidence of a variety of organizational and instructional factors that prevent schools from adequately educating African American students. The question remains, what organizational and instructional

characteristics are part of the winning recipe to create a high performing school that motivates African American students in mathematics? In this literature review, the researcher examines the assessment system in the State of Texas and discusses the development of systems to identify the performance of schools in Texas.

### **History of Performance Standards in Texas**

The “Nation at Risk Report” (1983) brought to light the overwhelming fact that American public schools were not adequately educating minority youth. As a result, many states across the country began concerted efforts to define persistent problems and address local concerns. Specifically in Texas, House Bill (HB)72 mandated multiple reforms in the state that increased graduation requirements, created a minimum accountability program for exit level testing, limited the amount of absences per year, as well as mandated that students could not be socially promoted (Secondary School Completion and Dropouts for Texas Public Schools, 2007-2008).

The first definition of a low-performing and high-performing school was implemented in Texas in the 1987 PEIMS Report. The State of Texas concluded that a low-performing school was defined as a school that performed in the lowest percentages, as specified by the Texas Education Agency’s assessment standards. The commission agreed that a host of sanctions would be administered to motivate local independent school districts to change practices and raise achievement (TEA, 2007). High-performing schools would be characterized as schools that received a rating that communicates that the student’s performance at the local school or district level has

received recognition due to meeting the performance standards of 90 percent in all content areas and within all subsequent sub groups (Texas Education Agency, 2007). The facilitation of these standards would change the terrain of education in Texas and be the catalyst that transformed thinking regarding school performance.

The early 1990s marked the beginning of an accountability era in which the new institution of the Texas Assessment of Academic Skills (TAAS) would create a system for characterizing schools in the State of Texas based on their academic achievement in four content areas. Standards were also facilitated that mandated high school seniors pass an exit level test prior to graduation. Local communities within the State of Texas began looking specifically at low-performing schools, and a host of publications brought to light a variety of existing characteristics that perpetuated low achievement (Orfield, 1993).

In 2001, the No Child Left Behind legislation would crystallize accountability standards within the State of Texas, and frame the current culture of accountability status. The legislation called for assessment of students from third grade to exit level in a variety of content areas to ensure that the Texas Essential Knowledge and Skills had been facilitated effectively by local educators (Texas Education Agency, 2010). High-performing schools would be categorized as “Exemplary” based on district and state standards, while marginal and low performing schools would be branded as “acceptable and unacceptable,” and a host of prescribed sanctions would be administered independent of the Texas Education Agency’s 1987 accountability standards (Texas Education Agency, 2010). Schools that were traditionally high performing would receive a variety of incentives such as teacher incentive pay, as well as state and district accolades.

On the other hand, schools that were consistently low performing would be reprimanded by various sanctions that could ultimately lead to reconstitution (Texas Education Agency, 2010). The annual report of the Texas Education Agency's Texas Public School Accountability System (TPSAS, 2009) stated:

While the number of low-performing schools is falling, a number still are failing to improve their performance or dropping in and out of low-performing status. Some states have addressed this problem through a method called "reconstitution." In this process, all or part of a campus's teachers must resign and reapply for their jobs with the school district. Research confirms that the results of such measures are well worth the effort. States that have used reconstitution have worked with teachers unions prior to instituting the reforms to ensure that the effort has adequate support. (p. 99)

Most inner city districts in the State of Texas have facilitated reconstitutions of secondary schools in an effort to transform achievement of at-risk students. On the other hand, schools that are traditionally exemplary are highly regarded in their local and district communities and have been a determinant in attracting residents in independent school districts across the State of Texas. Parents, local contractors, and businesses migrate to areas that have traditionally been successful on state standardized assessments (Cuban, 2008). This phenomenon has created an accountability climate that has molded a terrain that places capital on the assessment of students. It also infers that many children have varying levels of social and cultural capital that influence their performance from their home and community. The performance of the school is the nucleus of work by all educators within the organization, and annually separates the "winners" from the "losers." To many, it is the fabric that drives the education machine in Texas. Therefore, it is necessary to investigate the specific indicators that differentiate the accountability divide between high and marginal performing schools. A discussion is vital that

investigates the social and cultural constructs that influence information exchanges and group processes that are connected to the achievement of African American students in mathematics.

### **Theoretical Framework: Social and Cultural Capital Theory**

The social and cultural capital theory can be traced back to the work of Pierre Bourdieu (1986). His research would be the foundation of the social and cultural capital theories and would begin a variety of schools of thought that distinguished social networks and cultural experiences as capital within an institution. Specifically Bourdieu's work "Forms of Capital" (1986) characterized three forms of capital that individuals can access to enhance their position in organizations as well as in society. He believed that capital can be categorized as economic, social, and cultural capital.

Bourdieu (1984) characterized social capital as "the aggregate of the actual or potential resources which are linked to possession of a durable network of more or less institutionalized relationships of mutual acquaintance and recognition" (p. 249). This theory rests on the premise that there is a variety of inherent capital in the development and maintenance of networking and relationships. The creation of social grouping and networking is a valuable element of success that is essential for individuals within institutions. Researcher Coleman (1994) provided a more concise definition as it relates to education by stating that,

Social capital theory is defined by its function. It is not a single entity, but a variety of different entities, having two characteristics in common; they all consist of some aspect of a social structure, and they facilitate certain actions of individuals who are within the structure. Like other forms of capital, social capital is productive, making possible the achievement of certain ends that in its absence would not be possible. (p. 302)

The “theory of social capital” emphasizes a direct relationship between networking and relationships and how interaction creates opportunities to build frameworks of support and mutual trust. Specifically, the theory investigates the notion of how increased social relationships lead to a higher level of position within an organization (Coleman, 1994). Field (2003) coined the phrase “relationship matters” by concluding that networking causes individuals to group themselves based on trust and their combined relationships lead to high levels of social capital that creates support systems within communities. The overall investment in networks or social groups is therefore critical to the effectiveness and efficiency of the entire institution. The World Bank (2001) contended that the theoretical framework of the social capital theory “refers to the institutions, relationships and norms that shape the quality and quantity of a society’s social interactions. Social capital is not just the sum of the institutions which underpin a society: it is the glue that holds them together” (p. 117).

Most researchers agree that the social capital theory is rooted in education and has direct implications on the ability of leaders to create opportunities for individuals within an organization to build social networks and leadership grouping that produces a new paradigm of thought. The social capital theory emphasizes the need for organizations to maximize productivity through the development of “social stock” that focuses on interaction and grouping that inadvertently develops new methods and processes. According to Woolcock (2001), social capital “refers to the norms and networks that facilitate collective action” (p. 13).

Successful institutions are comprised of individuals that understand the importance of social capital and use networks and grouping to enhance the institution's position among competitors. Institutions that focus on the perpetuation of organized groups that are fundamentally developed due to interest, social activities, and leadership inherently are more successful to the cultivation of social capital (Putnam, 2000). Collaborative grouping, therefore, is an important attribute of social capital and has direct implications to the education field.

School leaders that are successful in developing social capital networks of trust, norms, and planning in a variety of leadership groups within the school organization will possess higher "social stock" than others which will undeniably lead to higher performing schools. The emphasis on the concept of collaborative grouping and networking is the determining factor that motivates students to future opportunities and ultimately separates high performing organizations from marginal institutions.

Bourdieu (1986) contended that cultural capital is the knowledge base, skill set, or extensive background that has been passed on through generations within a family. Specifically, important information that parents provide to their children enhances the latter's position in society. Cultural capital is divided into three important components: the embodied capital or "inherited" properties that are given to students through culture and traditions; the objectified cultural capital comprised as the accumulation of goods received from a specified lineage; and institutionalized cultural capital which consists of the specified qualifications, certifications, and credentials that are passed down from generation to generation (Bourdieu, 1986). The implications of cultural capital imply that

individuals possess inherent “stock” from the extensive knowledge passed on to them by their parents and that this capital can be valuable throughout their educational matriculation. Lareau and Weininger (2003) evaluated groups strategic use of cultural capital and maintained that the institutionalized characteristics are “subject to monopoly” by all participants across generations. Furthermore, the study concluded that individuals that have extensive cultural capital have a tremendous advantage over their peers. The theory of cultural capital emphasizes a direct relationship between parents’ knowledge and student matriculation and how both are interconnected in the elevation of the student’s position in society. Specifically, the theory investigates the notion of how increases in parent knowledge lead to a higher level of networking and resources for individual students within an organization.

Lareau’s (2003) book *Unequal Childhoods* includes an examination of 88 children’s lives over a ten-year period to determine how parenting is connected to student performance. She coined the phrase “concerted cultivation” by concluding that middle-class parents place considerable importance on teaching their children lessons that are not provided in the traditional school setting. This information ultimately encourages their children’s growth in school and in society. Lareau (2003) stated that children are taught valuable lessons in a variety of organizations and groups that encourage critical thinking as well as teamwork. Students are socialized to the benefits of interaction and organization at a young age. On the other hand, Lareau (2003) characterized students specifically from poverty in a theory called “the accomplishment of natural growth,” which is translated to a less structured environment in which parents spend an inordinate

time working at their jobs, leaving students with unstructured time that is spent in the neighborhood. Students have less exposure to organized networking activities and therefore are behind their peers.

In her book *Home Advantage*, Lareau (2000) examined the effects of cultural capital on students. She analyzes the difference in which knowledgeable parents influence their child's education through their participation in school-based associations. She also contends that parents encourage individual networking with teachers and the construction of a plan that ensures that their child obtains the best teachers and optimal resources for their educational growth. The study concluded that students that are provided the "scarce resources" of engagement gain inequitable access to a higher position in society than their counterparts. The overall investment in cultural capital separates the classes as well as the achievement gap. The group that controls the cultural capital inherently has more access and therefore more tools for success.

Most researchers agree that the amount of cultural capital that an organization possesses has direct implications on its performance. The ability of leaders to recognize the cultural capital of their teachers and students and create opportunities for additional exposure of all stakeholders is the measuring rod for success. Cultural capital must be recognized and individuals within an organization must be encouraged to build social networks and leadership grouping that produces a new process of thinking. School leaders who work with students that have low levels of cultural capital must create opportunities for their students to increase their "cultural stock" and success in school by exposing them to activities, groups, and organizations that can build bridges for learning.

The ability of school leaders to recognize the importance of cultural capital or the lack thereof, and provide avenues in which educators can infuse their own cultural capital in their students through sponsorship and grouping will ultimately determine the overall performance of the organization. The acknowledgment and emphasis on the concept of cultural capital is an underlying factor that differentiates high-performing organizations from marginal institutions.

High-performing schools have likely mastered the art of recognizing students' "capital stock" and building systems that are molded to maximize their student success. On the other hand, marginal performing schools may not place importance on social networks or cultural capital, and therefore develop a system in which students are isolated and disconnected. The framework of social and cultural capital theories are interconnected to the premise of this study due to how the investigation of the concepts shows that inherited skills sets can be cultivated through networking, grouping, and sponsorship. Specifically, how "social and cultural stock" can be developed, trained, and encouraged within students to produce higher performance. In regards to African American performance in mathematics, it was crucial to look at avenues in which organizations build structures that diagnose students "social and cultural stock" and enlist quality individuals to effectively create organizational and instructional frameworks that successfully educate African American students. It is also important to observe two schools that show a variance in quality in social and cultural capital to determine what practices are mastered by high-performing schools that leads to success for African

American students in mathematics. Lastly, Adam Smith (1776) emphasized the importance of quality instruction by stating that,

Derives no inconsiderable advantage from their instruction. The more they are instructed, the less liable they are to the delusions of enthusiasm and superstition, which, among ignorant nations, frequently occasion the most dreadful disorders. An instructed and intelligent people besides, are always more decent and orderly than ignorant and stupid ones. (p. 68)

The distinction of systematic structures that acknowledge and nurture social and cultural capital at all levels is indicative for success and is a factor that the literature review differentiates between marginal-performing and high-performing institutions.

### **Narrowing the Focus: “The Treisman Model”**

There is unequivocal evidence in the literature review that substantiates the essence of the “social and cultural capital theory.” Educators that create social and cultural opportunities produce high-performing students, as well as high-performing organizations; however, due to the generalities that exist in the conceptual framework, there was a need to narrow the focus of the study and examine specific organizational and instructional factors that were the underlying premises of this research. Within the social and cultural capital theory, a conceptual scaffold was created that set the tone of the study and strengthened the fundamental research questions that led to the comparative analysis of African American performance in mathematics in a high-performing and marginal-performing school. In short, a level of specificity was established that substantiated the reasoning in what indicators truly contribute to success in high-performing institutions, and how it is differentiated and not apparent in marginal-performing schools. The work of Dr. Phillip Uri Treisman was used as an anchor in determining what organizational

and instructional strategies foment cultural and social capital and should exist in the development of a learning community that centers on the success and achievement of African American students in mathematics.

Treisman's (1992) work is rooted in the study of elements that are prevalent in motivating and encouraging African American students to be successful in advanced mathematics. At the University of California at Berkeley, Treisman observed that African American students consistently failed calculus and underperformed relative to their peers. The rates were alarming, and he began his study by polling other professionals at the university to determine what was the underlying perception or reasoning for the African American student failure (Fullilove & Treisman, 1990). The results concluded that many professors at the University of California at Berkeley observed educational gaps within their African American students in relation to other racial groups. Through further analysis of the students and their backgrounds, he concluded that many African American students at the University of California at Berkeley were the pride of their communities and households and were not inherently unmotivated (Treisman, 1992).

Treisman cross-referenced African American performance with their Chinese American counterparts by studying 20 students within each group to determine disparities and indicators for success (Fullilove & Treisman, 1990). He found that Chinese Americans participated in intense study groups that supported one another by working on problems together and checking one another's work. Problems that were deemed too difficult were brought to the attention of teacher assistants for resolution. He also found

that the groups were developed and strengthened as Chinese Americans “matriculated” to the university (Fullilove & Treisman, 1990). In regards to African American students, many operated alone and did not participate in study groups or ask professional staff for assistance. Consequently, Chinese Americans were successful in calculus, while African Americans failed advanced mathematics. Based on his research, Treisman (1990) began to focus his work on the creation of a program that motivated African American and Hispanic students to be successful in advanced mathematics. The tenets of the Mathematics Workshop Program focused on three elements that transcended his time and are the basis of this study.

Treisman’s “Emerging Scholars Program” examined successful strategies that encouraged African American and Hispanic students to be successful and concluded that an effective program for minority students:

1. Focuses on assisting African Americans to achieve success within a “Best and Brightest” framework rather than a deficit model in regards to instructional practices.
2. Emphasizes faculty sponsorship as an element to connect African American students to school.
3. Concentrates on the importance of collaborative grouping as strategies for success. (Treisman, 1985, pp 30-31)

These specified indicators are the foundation of Treisman’s work at the University at California at Berkeley and are the underlying organizational and instructional factors prevalent in motivating African American students to be successful in mathematics at the middle school level. It is important to focus on each element to highlight specific aspects that are critical to the research as well as bring specificity to

exactly what organizational and instructional components will be expounded on in the study.

### **Best and Brightest vs. Deficit Model**

The research in the literature addresses the importance of high expectations by teachers as well as the participation of students in advanced placement courses as avenues to motivate African American students to succeed. Studies have shown that students perform to the level that they are expected to perform (Nieto, 2001). High expectations are a philosophy that effective teachers possess and it is often tied to the teachers' purpose and intrinsic need. Research confirms that many teachers that continue to successfully teach in economically disadvantaged areas believe and maintain high expectations for their students (Irvine, 2002).

Despite the student's background or experience, great teachers expect the best and do not offer excuses for underperformance. Therefore, it is important that institutions create organizational and instructional systems that promote a "Best and Brightest Approach" to learning and achievement. Researchers confirm that students that believe they are the best rise to the occasion. Rosenthal and Jacobson (1992) coined the "Pygmalion Effect" as the persistently held belief in another person, such that the belief becomes reality. The person believed in becomes the person that others perceive him/her to be. In common terms, this means that individuals become what they are encouraged to be. In their study, Rosenthal and Jacobson predicted that, if teachers expected students to do well in the class, they were successful. Teachers were provided information that certain students were brighter than others. Unconsciously, the teachers spent more time

with the brighter children than other students, and in time, they were more successful (Rosenthal, & Jacobson, 1992).

In regard to the social and cultural capital theory, great teachers cultivate an environment that projects excellence and do not operate in a deficit frame of mind. According to Treisman (1992), it is critical to establish “anti remedial” programs that focus on excellence and prepare students for success. When students feel that they are participating in an elite program that prepares them for success, they are intrinsically motivated to achieve. The basis and success of the Emerging Scholars Program at the University of California at Berkeley communicates that, when African American students are placed in a “best and brightest” program that expects them to be competitive with their peers, they consistently rise to the occasion. In his article “Studying Students Study Calculus, A Look at the Lives of Minority Mathematics Students in College,” Treisman found that 60% of all African American students received a D or an F in Calculus.

After the creation of the Mathematics Workshop Program, African American percentages grew exponentially. In the initial pilot, over two-thirds of all students that participated in the program received either an A or B (Fullilove & Treisman, 1990). Over a 5-year period, the program’s results dramatically changed the paradigm in which African American and Hispanic students were perceived regarding their achievement in mathematics. Treisman’s idea was to “construct a program in which students viewed themselves as well prepared, and provide students with a challenging yet emotionally supportive academic environment” (p. 368). The establishment of an organizational and instructional environment that is student centered and encourages students to be at their

best at all times is essential in studying factors that encourage African American students to be successful at the middle school level. Treisman's study confirms that the research must examine indicators within a high-performing as well as marginal-performing school that either promotes or discourages students to be successful. The method in which administrators, teachers, and stakeholders in the school community build structures that compel students to believe that they are the best is directly related to the academic achievement in mathematics. Treisman stated the following:

The kids I worked with convinced me that the remedial idea wouldn't work. And excellence is what the university is about. Aiming for excellence respects the mathematics, and I was a math guy; the remedial programs didn't respect the math. If you're aiming for an A or B, and you fail—well, the student still passes. If you're just aiming for students to pass the course, then if you fail, they fail. (p. 18)

### **Faculty Sponsorship**

The literature review incorporates the positive influence that teachers can make on students. The relationship between teachers and students can be instrumental to motivate mathematics growth. Love and Kruger (2005) revealed that teachers' belief in high expectations dictated a transformation in student achievement. The study maintained that the belief in high expectations coupled with positive interaction perpetuated academic success for students. Students that felt that teachers cared and communicated with them were more inclined to work extremely hard in their classrooms. The connection between students and teachers is a motivational technique that is expounded on at length in the literature review; however, in regards to the conceptual framework, it is important to examine ways in which this relationship is directly related

to organizational and instructional transformation. In her article, "Calculus and Community, A History of the Emerging Scholars Program," Asera (2001) stated that,

Human relations and caring were at the heart of the learning community. PDP was a place on a big campus where, as students frequently said, "Someone knows who I am." "They know me by name," and "Someone listens to me." The workshop was a place where the faculty and staff took the students' intellectual aspirations seriously. It was also a place where students could meet peers. Students could take part in conversations with mathematicians, and also have people to talk about music, sports, or news. PDP was a place where students could find things familiar and comfortable, but was also a place safe enough to explore new and unfamiliar ideas. (p. 16)

Faculty sponsorship is critical to the instructional growth of African American students in a school environment. Due to the lack of various organizational factors discussed within the literature review such as quality of leadership, and positive school community structures, many students disengage and can become isolated. It is crucial that relationships are established with faculty members that nurture student development in instructional and social emotional arenas. Treisman (1992) said it best by stating that,

The time has come to reexamine undergraduate instruction and to make it more responsive to the needs of today's students. We can no longer offer courses that half of our students fail, nor can we lower our standards. The challenge is to reconfigure undergraduate science and mathematics education in ways that will inspire students to make the choices we have made. This can happen only if we change the boundaries of faculty responsibility. It is the faculty that must take the lead. (p. 372)

In regards to this study, it was vital to examine the levels of faculty sponsorship at the administrative, and teacher level to determine positive relationships that motivate African American students to be successful at the middle school. There is undeniable evidence and literature that substantiates the effect of a positive relationship between a faculty member and a student. However, for the purposes of this study, it was important to

investigate how the concept of faculty sponsorship or lack thereof, motivates African American students to excel within a high-performing and marginal-performing school. Lastly, it was pertinent to compare levels of faculty sponsorship at each school and determine if this concept ultimately affects the progress of African American students in mathematics.

### **Collaborative Grouping**

Treisman's (1992) comparative analysis of African American and Chinese Americans concluded the importance of collaborative or communal groups that acted as support systems for students. In the development of the Mathematics Workshop Program, he investigated ways in which he could build a sense of community among minority students (Fullilove & Treisman, 1990). Faculty members created a variety of student-based activities that offered a social emotional mechanism for students to feel a part of a larger community (Asera, 2001). This collaboration was an essential component of Treisman's work and is the basis of investigation in regard to its substantial impact at the middle school.

Student grouping at organizational and classroom levels was examined in both middle schools to understand the effects on African American performance in mathematics. Researchers contend that students commonly begin to associate themselves at the middle school and choose to be in student-based groups throughout the organization and within the instructional process in the classroom. Ironically, there is a lack of research that examines the impact that the grouping has on student achievement from an organizational and instructional standpoint. It was important to look at how

African American student involvement in collaborative or communal grouping affects their learning. Tresiman (1990) acknowledged how the positive effects of grouping and a sense of community can transform thinking. It was important to determine if similar tenets are prevalent at the middle school, and thus inherently motivating African Americans to be successful.

### **Hypothesis**

There is undeniable evidence that substantiates the essence of the “social and cultural capital theory” in this study, however, there was a need to focus the research and examine specific organizational and instructional factors that are the underlying premises of this study. At the University of California, Treisman (1990) presented three broad strands that can be researched at a high-performing and marginal-performing school to determine if they affect African American student performance. It was important, however, to concentrate efforts on two specified strands and compare them in each school to determine if their overall effects determine academic growth in African American students in mathematics.

Faculty sponsorship and collaborative networking and grouping are the essence of success in developing African American academic achievement in mathematics. These tenets are also foundational components of the social and capital theory. African American students must be placed in critical thinking activities and groups that maximize socialization and create opportunities for future planning and success. They must also be connected to faculty members that truly understand their “capital stock” and are committed to build avenues in which students can excel.

The overall hypothesis of this study maintained that African American students that have effective organizational and instructional systems that center on collaborative “social” grouping as well as committed faculty that sponsor their efforts in the development of focused opportunities of exposure perform at a higher rate than their counterparts. The American adages, “there is power in numbers,” and “it is not what you know, it is who you know,” indicate that individuals that have developed social and cultural capital excel in any system. The study constructed survey questions that gauged the levels of faculty sponsorship within each middle school. The study also created focus groups that spoke specifically to the creation of student grouping as well as networking and determined how it affects the overall academic performance of African American students. The theoretical framework of social and cultural capital theory and Treisman’s model are directly connected to this study due to the notion that an individual’s acknowledgement of students’ backgrounds and modes of thinking should be the determining factors in the creation of a prescribed system that focuses on African American success in mathematics. Therefore, it was important to begin research to determine the level of social and cultural capital that existed in a high-performing and marginal-performing school by examining related organizational and instructional frameworks that had been successful.

### **Summary**

Chapter II includes extensive literature that not only looks at the problem that exists in facilitation of effective strategies that encourage African American students to be successful, but examines avenues that have been initiated that build a positive scaffold

for success. The research presents a need for additional research that not only acknowledges the deficits in mathematics achievement but also investigates strategies in all areas that perpetuate and increase academic performance.

The literature review also provides a host of information on factors at the school level that foster systems for success. Organizational factors such as quality of leadership, positive school community structures, instructional student leadership, and extra-curricular activities are analyzed to bring to light examples that organizations have incorporated to motivate African American students. Instructional factors such as: teacher quality, student culture, and teacher educational belief systems are analyzed to reveal components that lead to successful performance of African American students in mathematics.

The literature review concludes with the factors that distinguish and differentiate high-performing schools and marginal-performing institutions as well as incorporate the theoretical framework of the social and cultural capital theory in an effort to investigate indicators that determine success within the variance of schools. Lastly, the literature review narrows the focus of the study by infusing the Treisman model as well as two strands that are the underlying premise that guides the study. Each section begins with the past literature on the topic, and searches for information regarding strategies that promotes success. The purpose of the literature review is to acknowledge present deficits, however, focus on successful avenues that build a culture of excellence for African American students in mathematics. There is much work to be done on the topic and more effective strategies and data to be collected on successful studies that reveal

new paradigms. A study was needed that encapsulated the research and presented a comprehensive example of success.

### **CHAPTER III: METHODOLOGY**

The purpose of this research was to explore and evaluate educational structures that existed in a middle school setting that effectively empowers African American students to succeed academically. There is overwhelming research that speaks specifically to the achievement gap between African American students and their counterparts as well as the evidence of a variety of social factors that are present that inhibits student growth (Gutstein & Peterson, 2005). Data has concluded the evidence of school and community challenges that persuade African Americans to disconnect and isolate themselves. A number of researchers have analyzed the characteristics that are prevalent and the relationships that exist in the constant challenges with African American students in the school setting (Bryk, 2010). There has, however, been a lack of research that investigates positive educational strategies that ensures that African Americans are successful in the classroom.

There have been fewer instances in which research has looked specifically at the educational development of African American students in a comprehensive model. It is time for research that investigates positive organizational structures that are ever present that encourages African American students to be successful in mathematics. This research sought to gain an understanding of the factors that exist in a middle school setting in Texas that has traditionally proven to be effective in the advancement of African American students. The research findings can also become an example that can be replicated in other school environments that can assist in the development of new strategies that enable African American students to be successful.

Therefore, a methodology that sought to understand all participants' experiences in a specified school community was needed. Research that evaluated individual perspectives to gain an insight on the strategies that encompass the entire organizational culture was important to ensure that the positive characteristics that were employed were documented. It was necessary to record and analyze each group of individuals within both school organizations to understand how their experiences comprehensively equated to the success or failure of African American students in mathematics. The methodology was divided into nine distinct components: (a) problem statement, (b) research questions, (c) need for qualitative research, (d) site, (e) participants, (f) sources of data and collection, (g) analysis of the data, (i) data fidelity and confidentiality, and (j) chapter summary that brings clarity to the study and processes. This research looked to recognize the historical challenges and bring to light comprehensive strategies that effectively educate African American students.

Since the "Nation at Risk" report, there has been a social microscope on the growing achievement gap and factors that contribute to the increasing lack of improvement from African American students academically. However, there are no publicized examples of at-risk schools that have traditionally and consistently been successful with African American students in mathematics in the State of Texas. As the Texas Assessment of Knowledge and Skills is distributed each year, students of color are unconsciously expected to perform lower than their peers. In the wake of the State of Texas Assessment of Academic Readiness (STAAR) test, there exists a need to begin to investigate strategies that are researched based and proven that effectively promote

African American Achievement in mathematics. It was crucial to look specifically at schools that are making a difference in Texas and evaluate practices in an effort to replicate them in other settings. Secondary schools, particularly at the middle school, are important due to the traditional small sizes of the schools and the team approach that is synonymous in the State of Texas.

This study utilized a variety of surveys, interviews, classroom observations, and Texas Education Agency data to determine why specific middle schools in Texas are successful in African American student achievement in mathematics. This research investigated specific strategies that are facilitated by the school administration, teacher leadership teams and classroom teachers that empower African American students to succeed in mathematics. Furthermore, the study highlighted effective practices and analyzed trends that could be used by other schools in the future. The schools that were selected were expected to provide comparison data that could enable an understanding of organizational and instructional characteristics related to the performance of African American students in mathematics.

The overall hypothesis of this study maintained that African American students that have effective organizational and instructional systems that center on collaborative “social” grouping as well as committed faculty that sponsor their efforts in the development of focused opportunities of exposure perform at a higher rate than their counterparts. Specifically, schools that have committed educators that connect and sponsor African American students as well as group them into social, leadership-based

activities perform at a higher rate. One school that was researched is considered one of the highest rated, predominantly African American middle schools in the state of Texas and has exhibited increasing positive trends annually during the past three years. Another school that was researched has marginally performed, particularly in African American mathematics.

### **Need for Qualitative Study**

Choosing an appropriate methodology of study is extremely important in educational research. It is dependent, however, on a variety of factors and may take on many forms. Traditionally, there should be a direct relationship between the research design and the questions that are being investigated in the study. A qualitative approach is necessary to identify the views of individuals who shape an educational culture and in this case a focus on successful African American student achievement in mathematics. Qualitative research is commonly defined as “a method of inquiry rooted in social sciences that investigates human behavior and characteristics that govern such behavior” (Marshall & Rossman, 2006, p. 134). It answers specifically the “why” and “how” of a situation and looks at multiple perspectives that directly contribute to an outcome (Marshall & Rossman, 2006). Qualitative approaches to research are based on a "world view," which is holistic with three beliefs: (a) there is not a single reality, (b) reality based upon perceptions that are different for each person and change over time, (c) what one knows has meaning only within a given situation of context (Marshall & Rossman, 2006).

According to Miles and Huberman (1994), qualitative research enables the researcher to “focus on naturally occurring, ordinary events in a natural setting” (p. 10). Consequently, there was a need for qualitative data that exists in the present study due to the multiple perspectives that were apparent. In looking at the complexity of a school and the varied levels of educational operation, it was imperative that a qualitative study investigated practices that have contributed to a successful system that focuses on the achievement of students. Human perspective must be investigated at all levels of the school community for data that can be analyzed to generate conclusions why African American students choose to be successful. This study looked specifically at groups of individuals within the organization and sought to understand their experiences in contexts to the entire entity.

African American students were the foundation of the study; therefore, their culture and how it relates to their success was the center of analysis. An ethnographic approach was facilitated in the research to focus on the experiences of administrators, teachers, and parents to determine how the relationship became a recipe of success for the organization. Spradley (1979) contended that, “Ethnography is the study of learning from people” (p. 3). The analysis of a culture group, their behavior, shared behavior and everyday experiences shapes the world in which the group lives (Creswell, 2003). Therefore, it was imperative to research African American student achievement through the lens of the variety of individuals that contributed to their success in two middle school settings, with Texas as the selected state.

## **Site of the Study**

The study took place in two regions within the state of Texas. Due to the percentages of economically disadvantaged students and varying community indicators, both districts are considered by the Texas Education Agency to be at risk. However, their underlying demographics provide a variance due to the sizes of the districts and the distribution of students within each school.

## **Community Characteristics**

The Gulf Coast Independent School District (the name has been changed for confidentiality purposes) is located in the southeast area of Texas. It is a community that has a variety of similarities to many urban, metropolitan cities within the state. It is known for a notable university that has had a lasting tradition in Texas and is the headquarters for many prominent corporations. The 2010 census reported the population at 118,296 with a 2% growth annually within the county (U.S. Census, 2010). Specific demographics indicate that there are 43,569 households and 29,100 families residing in the city. Approximately 43.5% of the families were married; 29.5% of households were inhabited by non-families, and 18.1% had female-headed households. In 2010, the ethnic makeup of the city was comprised of 39.8% Caucasian, 47.3% African American, 13.4% Hispanic, and 3.3% Asian. The median income for a household in 2010 was approximately \$39, 699, and 21.3% of the entire population lived below the poverty line (U.S. Census, 2010).

The Central Texas Independent School District (the name has been changed for confidentiality purposes) is a small town in the Central Texas region and is home to one of the fastest growing areas in Texas. It has a rich history because of the variety of cultures, entertainment, business and political venues that frequent the cities in surrounding areas. The 2010 census reported the population at 5,500 (U.S. Census, 2010). Specific demographics in 2010 indicated that there were 1,645 families residing in the city (U.S. Census, 2010). In 2010, the ethnic makeup of the city was comprised of 24.9% Caucasian, 27.5% African American, 44.7% Hispanic, and .06% Asian. The median income for a household was approximately \$48,606; and 17.5% of the entire population lives below the poverty line (U.S. Census, 2010).

### **District Characteristics**

The study took place in two districts: Gulf Coast Independent School District and Central Texas Independent School District. According to the Academic Excellence Indicator System (2011), the Gulf Coast Independent School District's population was comprised of 19,505 students. The district demographics were 64.1% African American, 16.4% Hispanic, 16.1% Caucasian, and 3.2% Asian. Over 72% of all students in the district were economically disadvantaged. According to the Academic Excellence Indicator System, in 2010, Gulf Coast Independent School District had 3 high schools, 7 middle schools and 15 elementary campuses. There were approximately 2,869 staff and faculty members within the district; with 54.1% Caucasian, 41.0% African American, and 3.1% Hispanic. The average experience level of a teacher within the

district was 12.9 years and the teacher to student ratio averaged at 13.5 students. Gulf Coast Independent School District was hailed as the “Top Workplace” by a notable publication in the state based on the progressive strategies that have been implemented during the superintendent’s tenure.

According to the Academic Excellence Indicator System (2010), the Central Texas Independent School District student population was comprised of 7,173 students. The district demographics were 24.2% African American, 60.2% Hispanic, 11.3% Caucasian, and 2.3% Asian. Over 79% of all students in the district were economically disadvantaged in 2010. Central Texas Independent School District, in 2010, had three high schools, two middle schools, and seven elementary campuses. There were approximately 959 staff and faculty members within the district; with 56.3% Caucasian, 12.7.0% African American, and 21.9% Hispanic in 2010. The average experience level of a teacher within the district was 7.0 years, and the teacher-to-student ratio averaged at 14 students. Central Texas Independent School district is considered one of the fastest growing areas in Texas.

### **School Characteristics**

The study took place in one middle school in Gulf Coast Independent School District and one middle school in the Central Texas Independent School District. In 2011, Andrews Middle School (the name of the school has been changed for confidentiality purposes) was comprised of 337 students; the school’s demographics were 84.9% African American, 12.1% Hispanic, and 2.7% Caucasian. Over 91% of all

students during the 2010-2011 school year at Andrews Middle School were economically disadvantaged. There were approximately 43 staff members at the school; 54.9% African American, 42.1% Caucasian, and 3% Native American. The average experience level of a teacher at Andrews Middle School was 12.5 years and the teacher-to-student ratio averaged at 11 students. The original building that houses Andrews Middle School was built in 1922 in the local community. Initially, it was constructed as the first high school within the city; however, due to population growth, a larger school was built to accommodate the growing trends within the district (Texas Education Agency, 2012a).

During the 2010-2011 school year, Jackson Addition Middle School (the name of the school has been changed for confidentiality purposes) was comprised of 748 students; the school's demographics were 28.6% African American, 54.5% Hispanic, and 15.0% Caucasian. During the 2010-2011 school year, over 75.9% of all students at Jackson Addition Middle School were economically disadvantaged. There were approximately 68.4 staff members at the school; 15.5% African American, 7.0% Hispanic, and 64.2% Caucasian. The average experience level of a teacher at Jackson Addition Middle School was 5.6 years, and the teacher-to-student ratio averaged at 13.8 students (Texas Education Agency, 2012 a)

### **Participants**

In regards to comparable schools that were comprised of over 85% African American, Andrews Middle School was the top performing school in the state of Texas during the 2010-2011 school year. The school received the distinguished honor and gold

performances awards in math and science. The school was predominantly African American and was considered at risk due to the high percentage of economically disadvantaged students that participated in free and reduced lunch. The school is located on the southeast sector of Gulf Coast County and meets Title 1 criteria based on the standards of the federal government. Andrews Middle School was chosen for this study primarily due to its demographics as well as the successful achievement of African American students from 2007-2011 in mathematics. The school had one of the largest concentrations of African American students in the State of Texas and their performance was comparable to many magnet or vanguard schools in mathematics. Since 2007, Andrews Middle School Texas Assessment of Knowledge and Skills results in mathematics has increased and their African American population has consistently scored above their peers in other regions in Texas (Texas Education Agency, 2012a).

During the 2010-2011 school year, Jackson Addition Middle School was comprised of over 28% African American students and has seen a variance of underperformance in mathematics in the past three years (2008-2011) in regards to African American students. Jackson Addition Middle School was rated “Academically Unacceptable” in Texas during the 2010-2011 school year. The school was predominantly comprised of African American and Hispanic students and was considered at risk due to the high percentages of economically disadvantaged students that attended the school. The school is located on the east sector of Central Texas County and meets Title 1 criteria based on the standards of the federal government. Jackson Addition Middle School was chosen for this study primarily due to its similarities and differences

in demographics and performance in mathematics with Andrews Middle School. The middle school was categorized as unacceptable in regards to the State of Texas Assessment System, however, the school has had marginal performance in mathematics. The “unacceptable” rating was primarily due to .1 percentage variance in the student dropout rate. The school is located in a relatively small district in Texas and has marginally performed particularly in African American mathematics (Texas Education Agency, 2012a).

The participants within this study consisted of the administration, teacher leadership team, math teachers at each grade level at the specified campuses, and parents that had consistently participated in the prescribed teacher classrooms at both middle schools. An initial application was provided and approved by the Institutional Review Board. After the approval was provided, a presentation of the proposal was initiated for each superintendent for an approval of the plan. After the plan was approved by the superintendent; specific presentations were facilitated for each member of administration, teachers, and parents at both middle schools.

Teacher participation was voluntary. Approximately twelve teachers were informed of the direct benefits of the overall study to provide additional insight that could be used in the classroom to increase the overall success of African American student achievement in mathematics. Teachers recommended the parents who could participate in the study, and a presentation was provided for each parent participant in the study. Approximately six parents agreed to participate in the study. Their participation was

voluntary and they were informed of the level of support that would be given to their children's school throughout the entire process. In conclusion, the individuals within the study demonstrated a sample of each level of participation in the processes to distinguish comprehensive strategies that had been created that empowered African American students to succeed in a secondary school. It was crucial that all participants understood that the study was voluntary and were informed about the significance of their role in drawing conclusions about the research.

### **Sources of Data**

Maxwell (2005) noted that qualitative research is an inductive process that requires the analysis of deep, rich data to be used during the investigative process. The research took place within a frame of three phases through a series of presentations: one-on-one interviews, surveys, and focus groups that were used to ensure that a host of qualitative data could be collected throughout the study. Presentations were conducted with each participant to provide an overview of the information. It was important that all participants had an understanding of the research dynamics. Interviews were to be used to ensure that each participant's perspective was a part of the study and that their assumptions and beliefs would be noted.

At the end of the study, a survey was initiated to collect the perceptions of all individuals and the data were gathered and analyzed. The sources of data were implemented chronologically during the three phases. After each phase, the data was

analyzed by scripting and coding, and the participants were scheduled for the next phase of the process.

### **Data Collection Procedures**

To assure validity, the data was analyzed through a structured process. In looking at the data, it is important that the research was divided specifically within three phases. A list of data sources as well as data collection procedures were provided to create a model that was used throughout the study. Each phase focused on the actions that were taken by the researcher to ensure that all participants were involved during the study. A table was constructed that provided an infrastructure of concepts that were integrated within the interview and survey phases.

### **Presentation Phase**

The first phase of the study revolved around building the foundation of research and communicating each aspect of the study to the participants in a way that was understandable as well as building a sense of ownership to the study. Denzin and Lincoln (2000) contended that trust and a sense of ownership are monumental in developing relationships during the study. It was important that the researcher established a connection and an open channel of communication with all participants of the study. The presentation phase was differentiated by participants to guarantee that all expectations were communicated in the cycle of research development (Denzin & Lincoln, 2000).

## **Meeting with the Superintendent**

A meeting with the instructional leader of both districts started the series of presentations with the district's leadership and specified leadership teams in an effort to set the stage for the entire study. An overview of the entire process was provided to the district leadership as well as a checklist of specified dates and deadlines throughout the process. An example of each interview questionnaire, survey and coding matrix was provided for integrity purposes and all questions about the process were answered and communicated within a forty-eight-hour process in a Frequently Asked Question format. The researcher's personal telephone information was provided to allow ongoing communication throughout the process, and the tentative date for the results for the study were given to encourage how the data could be provided to assist the entire organization.

## **The Principal/Administration**

The presentations with the leaders of the building were similar to the superintendent. It was important that the parameters of the study were coherent and were aligned to be of assistance to the entire organization. It was vital that the principal and administrative team understood that there was a process to engage and clarify all questions.

## **Department Focus Group**

Due to the flexible nature and composition of content area departments in the school setting, it was important to ask the principal a variety of questions that focused on

the quality of team involvement within the school's operations. It was important to determine how the mathematics departmental team was integrated in the instructional and organizational school fabric to make a decision on how the presentation would be modified for the participants. Since traditionally a department team is comprised of a lead teacher or chair, this group was the nucleus of operation of the study. Lead teachers were usually department leaders and there were specific questions designated for the math department chair that guided the study in the achievement of African American students. All questions were expected to be answered and professional trust was established to conduct the study at both middle schools.

### **Teachers**

Due to the nature of the study, the teacher's presentation was different. It was important that the teachers had an understanding that they were selected as study participants and that questions would be generated to find the specific strategies that were present that motivated African American students to succeed. The teacher's "everyday" behavior was encouraged and an example of the teacher interview form was provided. It was communicated that the process was nonthreatening and non-evaluative to ensure that teachers were comfortable with the process.

### **Parents**

The presentation to the parents was similar to the teacher's process in the "everyday" behavior that was encouraged and observed throughout the study. Nonthreatening and non-evaluative collaboration was communicated continuously to create a comfortable

process in which all participants felt that their input was warranted and appreciated. Communication processes were established with parents in an effort to establish trust and a sense of connection to the study.

### **Analysis**

At the end of the presentation process, all questions were analyzed for patterns and similarities. Specific notes were taken during each presentation and the data was used to look at future modifications to the interview, observational and survey phases that were upcoming in the research. A frequently asked questionnaire was created and communicated at the end of each presentation to aid in the coherence of the study.

### **Interview Phase**

Yin (1994) suggested that interviews should be constructed in a manner that the participants are able to express their viewpoints in an open indiscriminant forum. A set of questions should be developed as the catalyst of work; however, the researcher must allow the participants to deviate to alternative areas to garner information that can be useful to the study (Merriam, 2009). The interview phase was divided in to four distinct sections that were scheduled for each participant. A calendar of the specified dates was communicated for all participants. The interview phase was divided into specified concepts of concentration to gather information about the school through the perceptions of the study participants. The elements of philosophy, school structure, culture, staff composition/characteristics, best practices and community influence were clustered within the interview questions. The following table provides the specific concepts that

were integrated in each participant’s interview questions. A sample of the interview forms is provided in Appendix D.

Table 1

*Questionnaire Constructs*

Participants	Concepts
Principal & Administrative Team	Belief Systems, School Structures, School Culture, Instructional Best Practices, Faculty Sponsorship & Student Grouping and Networking
Department Team Focus Group	Belief Systems, School Structure, Instructional Best Practices, Faculty Sponsorship, Student Grouping and Networking & Community Influence
Teachers	Belief Systems, School Structure, Instructional Best Practices, Faculty Sponsorship, Student Grouping and Networking & Community Influence
Parents	School Culture, Best Practices, Belief Systems

All interviews were appropriately scripted and coded for analysis. Open coding characteristics such as similarities, differences, perceptions and what, how, and why was compared for data conclusions. The coding process concluded with selective coding that revolved around the central themes of concentration during each interview (Marshall & Rossman, 2006). It was important to look critically at the data to determine if the coded results centered on the specified theme of the interview.

## **Data Analysis Procedures**

The initiation of a study that investigates two school organizations from a comprehensive scope should consist of a variety of levels of qualitative data measures that ensures that the recognition of patterns and participant's experiences are documented. The data analysis phase of the methodology looked specifically at the important components of data collection that were used during the study as well as the variety of analysis strategies that were incorporated to ensure that the study's validity was preserved. The data collection measures that were at the center of the study were a variety of one-on-one interviews, focus groups, and the collection of documents that were relevant to the study. Meriam's (2009) coding procedures, the process of triangulation, effective transcription, and the analysis of field notes were utilized for the analysis procedures to facilitate and ensure efficacy and integrity. The legitimacy of the data was important; therefore, it was important to carefully construct a systematic process that effectively disaggregated the data received throughout the study.

### **Interviews**

One-on-one interviews was a strategy used to collect and interpret the information with a variety of participants at the school. Throughout the process, the researcher used strategies to encourage participants to feel comfortable to express their ideas and viewpoints. Interview questions were provided and individuals were encouraged to share any story of present or past experiences as it related to their tenure at both middle schools. During each session, the researcher's goal was to structure questions that

maximized each participant's experiences with limited interruptions by any outside forces (Maxwell, 2005). Lastly, the researcher transcribed the audio taped information in an effort to ensure that all interview protocols had been followed for confidentiality purposes within the study.

### **Focus Groups**

Marshall and Rossman (2006) contended that using focus groups within the study can be beneficial due to the variety of perspectives and viewpoints that can be documented in a natural atmosphere in which the participants are able to merge their thought processes through non guided conversation. Denzin and Lincoln (2000) described focus groups as, "a collectivistic rather than an individualistic research method that focuses on the multivocality of participants' attitudes, experiences, and beliefs" (p. 836). One-on-one interviews are important to collect and analyze data due to the personal frames of thought that are brought to a study; however, focus groups were an important process that was developed in this study. The institution of focus groups was considered crucial to this research to understand the collective thought that can take place to comprehensively create a systematic organization that perpetuates success for African American students. Focus groups were created within the math department team after the series of one-on-one interviews was concluded.

The researcher looked specifically for patterns of experiences and ideas related to the overall method in which success was attained by the organization as well as their collective thought of the organizational policies and procedures that had been

implemented. The focus group was comprised of at least four individuals, and a small number of general questions were created to garner a variety of responses from the group (Creswell, 2003). In conclusion of each group interaction, the researcher transcribed the information recorded on audiotape in an effort to ensure that all interview protocols were followed for confidentiality purposes during the study.

### **Field Notes**

Marshall and Rossman (2006) maintained that field notes are instrumental in the data collection and analysis process due to their description of the setting and the participant's behavior within a study. As the researcher interviewed participants, field notes were taken in an effort to expand during the analysis phase of the study. Patton (1990) affirmed that field notes set the scene by providing details about participants' exhibited behaviors that add to the researcher's interpretation of the situation. In relation to this study, field notes were taken after each individual interview as well as the focus group, which were chronicled for future analysis. In conclusion, participants were invited to review the field notes to ensure validity. This process, known as "member checking" is instrumental in the alignment of the researchers and participants perceptions of the data that is transcribed prior to the coding process (Maxwell, 2005).

### **Coding the Data**

In 1988, Merriam's *Qualitative Research and Case Study Applications in Education* created a coding protocol that identified specific categories and indicators for each of the data sources within the research. The coding scheme is an important measure to identify patterns and themes throughout any research from participant responses.

According to Merriam (1988), the following steps are paramount to ensure that the data is appropriately transcribed, coded, and analyzed:

1. Assemble the raw case data into a variety of categories and themes that brings to light prominent patterns.
2. Evaluate the categories and themes that resonate from the case study.
3. Synthesize the information by creating organized theme narratives and providing a matrix that summarizes characteristics that emerge in the data.
4. Connect the categories and concepts within the case study while providing sources of qualitative data. (Merriam, 1988, p. 112)

This study focused specifically on the work of Merriman (1988) and Miles and Huberman (1994). All individual and focus group interviews were transcribed in an in depth method and analyzed by labeling specific descriptors that indicated themes within the study. Once the broad themes were generated, they were categorized into larger themes to captivate the systematic manner in which the organization has been successful. The constant comparative method was used on completing the coding process (Glaser & Strauss, 1967) to combine the categories as many times as possible to uncover additional themes that could be present in the data along with the triangulation method.

### **Triangulation**

Merriam (2009) suggested that the process of triangulation molds and hardens the data by examining the information from a variety of angles. Creswell (2003), in an earlier study noted that triangulation does not only focus on the combination of data, but rather centers on how they are related which inadvertently counteracts any threats of a lack of validity. As it related to both middle schools, it was important to carefully review the information that was provided from the one-on-one interviews, focus groups, and

questionnaires to triangulate the data with specific documents that were used in the study to ensure internal and external validity. The goal of the study was to incorporate effective strategies to ensure successful management and confidentiality of the research process.

### **Data Fidelity and Confidentiality**

The fidelity and confidentiality of the data that is collected is crucial and important to the validity of the findings and conclusions of any research. Therefore, all data that were categorized as interviews, focus groups, field notes, and questionnaires were evaluated carefully and identifying characteristics of the participants of the study were changed to protect and preserve the confidentiality of the study. All the information (transcripts, field notes, interviews, recordings, documents, etc.) was also kept in a locked storage area at all times to ensure confidentiality. Lincoln and Guba (1985) affirmed that dependability, credibility, transferability, and conformability are indicators that are used to confirm the trustworthiness of research. Furthermore, Maxwell (2005) added that three threats to the validity that are apparent to research are as follows:

1. The researcher's description of the events and experiences of participants.
2. The accurate interpretation of personal reflections.
3. The lack of accuracy in the data that is collected. (p. 234)

As noted earlier, the methodical, systematic collection of data through field notes, appropriate recording and transcription was the mechanism utilized to ensure trustworthiness and confidentiality.

Additional analysis procedures were used to facilitate member checks, triangulation, persistent observation, and Merriman's coding system, which were

valuable in ensuring credibility and confidentiality (Lincoln & Guba, 1985). Guba (1981) defined credibility as “the researcher’s ability to account for all complexities that are present within the research and accept patterns that are not easily apparent” (p. 68). It was critical to maintain extensive participation, persistent observation, and participant debriefing to ensure validity (Guba, 1981). Lastly, all information that was collected and analyzed adhered to the policies and procedures of the Institutional Review Board (IRB); all information collected will be kept in an appropriate confidential storage area for approximately three years.

### **Summary**

In chapter III, the researcher has provided a detailed account of each of the components that has comprised the methodology portion of the study. Structural elements such as the problem statement, research questions, need for qualitative research, site, participants, sources of data and collection, analysis of the data, data fidelity and confidentiality, chapter summary were used to provide a scaffold of understanding of the manner in which the research is facilitated and how the data is collected, categorized, analyzed, and evaluated.

The overall purpose of this study was to examine middle school practices that have traditionally been successful in encouraging African American students to achieve in mathematics and investigate patterns that exist looking specifically for strategies that other schools can implement to motivate students. As an educator, it is extremely important that all students have an access to an appropriate successful education and that

educational organizations build systematic infrastructures that encourage students to experience success in all areas specifically in the area of mathematics. By using qualitative data that is a collection of administrators', teachers', parents' perceptions, attitudes, beliefs, and practices this study is expected to change current paradigms regarding African American student achievement. The results can be beneficial for future research that examines similar concepts and investigates further connections. There is much work to be done on the topic and more effective strategies and data to be analyzed.

## **CHAPTER IV: FINDINGS AND CONCLUSIONS**

The purpose of the research was to look specifically at schools that were making a difference in the State of Texas in mathematics and evaluating the school's practices in an effort to replicate them in other settings. It was also crucial to compare their methods with schools that were marginally performing to analyze determinants for success. Researchers, Johnson and Kritsonics (2006) asserted that a variety of achievement gaps exist among African American students and their peers; however, the largest gap was in the area of mathematics. It was important to look at two schools to determine the comprehensive implementation of strategies that positively affect the performance of African American students.

This study utilized a variety of surveys, interviews, and Texas Education Agency data to determine why specific middle schools in Texas are successful in African American student achievement in mathematics. This research investigated specific strategies that were facilitated by the school administration, departmental teams, and classroom teachers that empower African American students to succeed. Furthermore, the study highlighted effective practices and analyzed trends that can be used by other schools in the future. The schools that were selected provided comparison data that could enable an understanding of organizational and instructional characteristics related to the performance of African American students in mathematics. The study also analyzed both schools' data and compared them with other Texas programs. This qualitative research addressed the following research question:

What organizational and instructional characteristics foster information exchanges that are identified by Texas middle school administrators, teachers, and parents that are perceived to improve urban African American students' mathematics achievement?

The overall hypothesis of this study maintained that African American students that have effective organizational and instructional systems that center on collaborative “social” grouping as well as committed faculty that sponsor their efforts in the development of focused opportunities of exposure perform at a higher rate than their counterparts. Specifically, schools that have committed educators that connect and sponsor African American students as well as group them into social, leadership-based activities perform at a higher academic rate. One school that was researched was considered one of the highest rated, predominantly African American middle schools in the State of Texas and has exhibited increasing positive trends annually during the past three years (2007-2010). Another school that was researched had marginally performed, particularly with African American students in mathematics.

A variety of interviews and surveys were initiated at each campus that garnered input concerning the various organizational and instructional factors that existed at the campuses. In an effort for clarity, the following research interview questions and surveys that were used were categorized into factors that were pertinent to this study.

Administrators, math departments, teachers and parents were questioned to examine organizational, instructional, faculty sponsorship and leadership grouping factors that

were determinants for African American student success. In addition, the departmental focus group was surveyed to uncover specific belief systems and structures that teachers felt were necessary for African American students academically. The questionnaires were appropriately entitled Administrator Interview Questionnaire (AIQ), Teacher Interview Questionnaire (TIQ), Focus Group Interview Questionnaire (FGIQ), Parent Interview Questionnaire (PIQ) and were used extensively during the findings portion of the study.

Table 2

*Administrator Interview Questionnaire (AIQ)*

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**Administrator Interview Questions**

**Organizational**

- What organizational structures do you believe encourage African American students to be successful in mathematics? How have you organized your school to ensure this success?

**Instructional**

- What qualities and instructional skill set must leaders possess to ensure that African American students are successful in mathematics?
- How does teacher quality affect African American success in mathematics?

**Faculty Sponsorship**

- Is there teacher sponsorship or mentoring of African American students? Do you believe that sponsorship makes a difference?

**Student Grouping**

- What student leadership activities, extra curricular activities or networking opportunities are available for African American students? Do you believe that they make a difference in the success of African American students?

**Administrator Belief System**

- Why do you believe African Americans are not successful in mathematics?
  - What makes your school different from other schools in your district?
-

Table 3

*Teacher Interview Questionnaire (TIQ)*

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**Teacher Interview Questions**

**Organizational**

- How is your classroom structured? How does this structure motivate African American students to be successful in mathematics?

**Instructional**

- How has your African American mathematics scores progressed in the past few years?
- What are best practices that you have implemented in your classroom this year to encourage African American students to be successful in mathematics? Do African American students feel that they can be successful in mathematics?

**Faculty Sponsorship**

- Have you regularly sponsor or mentor African American students? Has this been effective?

**Student Grouping**

- Do African American students have access to networking opportunities or grouping activities inside the classroom? Does grouping truly affect African American student learning?
- Do you believe that students that belong to organizations and are able to collaborate and do better than their peers?

**Teacher Belief System**

- What is your belief of the current state of African American students in mathematics? What do you believe needs to change to encourage African American students to be successful?
  - What makes your school different from other schools in your district?
-

Table 4

*Focus Group Interview Questionnaire (FGIQ)*

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**Focus Group Interview Questions**

**Organizational**

- How is your department structured? How does this structure motivate African American students to be successful in mathematics?

**Instructional**

- How has your African American mathematics scores progressed as a department in the past five years?
- What do you believe has attributed to this trend?
- What are best practices that you have observed that work with African American students?

**Faculty Sponsorship**

- Do teachers regularly sponsor or mentor African American students? Has this been effective?

**Student Grouping**

- Do African American students have access to networking opportunities or grouping activities inside the classroom? What activities or organizations have you observed to be effective with African American students?

**Focus Group Belief System**

- What is your belief of the current state of African American students in mathematics? What do you believe needs to change to encourage African American students to be successful?
-

Table 5

*Parent Interview Questionnaire (PIQ)*

---

**Parent Interview Questions**

**Organizational**

- Are there any conditions within the school that you believe inhibit or encouraged your child from being successful in mathematics?

**Instructional**

- How has your child progressed in mathematics? What challenges and successes has he/she had during their time at this school?

**Student Grouping**

- Has your child participated in leadership or extra-curricular activities? Do you believe that those groups helped them to be successful in mathematics?

**Parent Belief System**

- What were your experiences with mathematics in school? Does your child have a variety of experiences at home to work on mathematics?
  - What are your feelings or beliefs on African American children and mathematics?
  - Why do you believe African American students struggle in mathematics?
- 

The following questions were provided to each school's principal, math department, grade level teachers, and parents to analyze factors that were attributed to the achievement of African American students in mathematics. The information that was provided to the primary investigator was coded as well as analyzed and was the catalyst for the research findings. The qualitative data that was collected was extensive and was appropriately divided into sections based on each school's input. The sections began with prescriptive Texas Education Agency data that provides a context for the information that was collected from the interview responses.

The findings of the study are formatted to look at the organizational and instructional factors that exist in each school that perpetuates success in African American achievement in mathematics. The findings will conclude by evaluating and analyzing the faculty sponsorship and collaborative grouping as well as participant's belief systems regarding African American student achievement in mathematics. It is the study's intention that the findings and conclusions can be used in future processes to evaluate other middle schools in the State of Texas in the analysis of best practices.

### **Andrews Middle School**

Andrews Middle School is located in Gulf Coast Independent School District and is comprised of 337 students; the school's demographics are 84.9% African American, 12.1% Hispanic, and 2.7% Caucasian. Over 91% of all students at Andrews Middle School are economically disadvantaged. There are approximately 43 staff members at the school; 54.9% African American, 42.1% Caucasian, and 3% Native American. The average experience level of a teacher at Andrews Middle School is 12.5 years and the teacher to student ratio averages at 11 students. The original building that houses Andrews Middle School was built in 1922 in the local community. Initially, it was constructed as the first high school within the city; however, due to population growth, a larger school was built to accommodate the growing trends within the district.

**Data**

The following Table 6 shows Andrews Middle Schools mathematics scores over a 10-year period from 2002-2011.

Table 6

*A Multi-Year Academic History from 2002-2011*

Campus:	323910045				
Campus Name:	ANDREWS MIDDLE SCHOOL				
District Name:	GULF COAST ISD				
County Name:	RHOADES				
TAKS Mathematics					
	2002	2003	2004	2005	2006
ALL Students	86.8%	42%	40%	50%	48%
African American	86.6%	39%	42%	47%	46%
Hispanic	90.3%	52%	60%	65%	59%
White	84.6%	*	*	99%	80%
Economically Disadvantage	86.3%	40%	41%	48%	48%
	2007	2008	2009	2010	2011
ALL Students	69%	74%	75%	82%	87%
African American	67%	74%	75%	79%	85%
Hispanic	79%	75%	72%	94%	94%
White	91%	*	*	99%	90%
Economically Disadvantage	69%	73%	76%	81%	87%

The data at Andrews Middle School shows an incremental positive increase of achievement in African American students in mathematics over a 10-year period of time. Based on their performance in 2008, Andrews Middle School was considered a “Recognized” middle school in the State of Texas. The African American students’ mathematics scores shown in the aforementioned table in the 2011 school year are one of the best performances from a comprehensive middle school in the State of Texas. The next data sources will look specifically at the teaching demographics to analyze specific characteristics that are vital to the success of African American students.

Table 7

*2010-11 Campus Performance Report—Staff Member Experience Levels*

Campus:		323910045		
Campus Name:		ANDREWS MIDDLE SCHOOL		
District Name:		GULF COAST ISD		
County Name:		RHOADES		
Teachers by Years of Experience	Count	Percent	District	State
Beginning Teachers	0.8	2.5%	4.0%	6.0%
1-5 Years	9.3	27.8%	24.9%	30.0%
6-10 Years	4.0	12.0%	20.0%	21.1%
11-20 Years	12.2	36.6%	26.6%	25.0%
Over 20 Years	7.0	21.0%	24.1%	17.9%
Average Years of Experience of Teachers			12.5 Years	
Average Years of Experience of Teachers in Mathematics Department			21.0 Years	

The experience level of teachers at Andrews Middle School positively exceeds state percentages in all areas, particularly in the highest experience levels. The school as a whole experience averages at 12.5 years and the math department specifically averages at 21 years of experience. The implications of a group of individuals with an average of 21 years of experience is definitely positive in regards to the academic achievement of African American students. It is however, important to look at more demographic information to examine the variables for success.

Table 8

*2010-11 Campus Performance Report—Staff Demographic Report*

Campus:	323910045				
Campus Name:	ANDREWS MIDDLE SCHOOL				
District Name:	GULF COAST ISD				
County Name:	RHOADES				
Teacher Ethnicity	by	Count	Percent	District	State
African American		18.3	54.9%	41.8%	9.3%
Hispanic		0.0	0%	4.3%	23.7%
White		13.0	39.1%	52.1%	63.9%
American Indian		0	3.0%	0.2%	0.4%
Asian		0	0%	0.8%	1.3%
Pacific Islander		0	0%	0.0%	0.1%
Ethnicity of the Math Department		Count	Percent		
African American		1	20%		
White		4	80%		

The following data shows a high concentration of African American teachers at Andrews Middle School that far exceeds the State of Texas percentages. The school also has a lower percentage of White teachers compared to the State of Texas as well as Gulf Coast Independent School District. However, in regards to the math department, there is an overwhelming percentage of White teachers as opposed to African American teachers. The implications of this data set raise questions and set the tone for the upcoming findings for Andrews Middle School. In conclusion, it is important to look specifically at data for identifying characteristics of each school prior to the findings to understand the context that exists in each school community. The data substantiates that Andrews Middle School is a school that has a 5-year tradition of incremental growth. They have received accolades from the State of Texas and community for their work over the past five years. The math department has an experienced staff of teachers that have an average experience of 21 years in education. They are primarily White, and have worked at Andrews Middle School together for the past 14 years.

The data segment of the findings has provided substantial information regarding a subset of characteristics concerning Andrews Middle School. The next facet of the findings will look specifically at organizational characteristics that are prevalent at the school. Due to the format of the interview questionnaires, the findings will be divided into four basic sections that will provide clarity of data gathering. Thematic interview findings from administrators, teachers, department focus groups, and parents will be examined to look at organizational factors that are associated in the academic achievement of African American students in mathematics. Specific questions, answers,

and quotes from each questionnaire will be examined to provide an understanding of the elements of success at Andrews Middle School.

### **Organizational Factors that Promote Success**

The research premise centers on the implementation and facilitation of positive organizational structures that motivate African American students to be successful in mathematics. A variety of interview questions were created in each questionnaire that solicited information regarding organizational systems and structures from all participants in the study. Administrators, teachers, focus groups, and parents were given specific questions that centered on the creation of positive organizational structures. During this section, there will be a concentrated focus on the questions and the information that was provided to each participant.

#### **Administrator**

The principal of Andrews Middle School is an educator with over 25 years of experience. He started his career as a high school English teacher and a basketball coach. Being a native of the Gulf Coast area, he was known for his motivational strategies on the court and in the classroom. He received accolades in the classroom as well as in the sports arena and later decided to pursue school administration. He was appointed the principal of Andrews Middle School in 2004 after serving as an assistant principal at a Gulf Coast ISD high school. When he arrived at Andrews Middle School, the organization was staged “Unacceptable” and had been low performing for many years. The student population and faculty were apathetic and the school community was very chaotic. In the past eight years at Andrews Middle School, the principal has successfully

changed the culture of the school and the community perception. The school has received various “Governor Awards” and has been a “Recognized” campus for many years. The following information is a compilation of the interview questions that revolved around the creation of a positive organization that perpetuates success for African American students.

*AIQ 1: What organizational structures do you believe encourage African American students to be successful in mathematics? How have you organized your school to ensure this success?*

The principal stated that when he came to Andrews Middle School there was a sense of distrust and instability; therefore, the first order of business was to establish a culture of excellence for students and to create a family of learners that focused on every aspect of the child. The principal spent countless hours talking to teachers about his plan and supporting the teachers in their endeavors as well as providing positive incentives and accolades for the students. The principal stated that,

I have tried to develop an attitude around the campus that is about family; my approach was to show respect and love. Eventually, they were able to see that my attitude was positive and they began to do the same things. They saw that I was genuine in the things that I was doing, it wasn't make believe and fake. I established a structure that we are all one and that the only people that can stop us is us. That is the approach that I have. I always try to be honest, when I tell someone that I will do something every knows that I will do it. A positive, family approach is my approach. As a leader it is very important to communicate that the school is a family.

The first mechanism that changed revolved around transforming a chaotic culture to a climate that focused on a family concept where children felt safe, respected, and that they were allowed to participate in the learning process. Children were encouraged to “pull up their pants” and dress accordingly because the school had transformed into a

calm organization of learning. The principal stated that he taught the children that there were two different forms of behavior: a behavior at home and a behavior at school. The principal and faculty taught students that being at school “was about business” and that their behavior should be respectful, courteous, and exude excellence in all aspects.

The second phase focused on the internal structures and systems of instruction and discipline. The principal encouraged consistency in all grade levels of the instructional delivery and incorporated a very structured environment in which students understood the policies and procedures in the classroom as well as the hallways and common areas of the building. Each day Andrews Middle School starts in the cafeteria with all students eating breakfast. After breakfast, all students are encouraged to go to the auditorium to prepare for day. During this structured time, the students spend approximately 15 minutes reading and working on homework. The next 15 minutes of the morning meeting are spent with the principal. This is a time in which the leader of the organization motivates, communicates, and empowers all students at Andrews Middle School. The principal commented that he provides incentives, he raps with the children, and he shows his students that he cares and that he truly believes that they are the best middle school in the State of Texas. He stated that he says, “you are the best middle school in the State of Texas” at least five times during the morning meeting in an effort to motivate his students for academic and personal success.

The last phase of organizational structure at Andrews Middle School centers on accountability. The principal is extremely supportive of all students and teachers at Andrews Middle School; subsequently there is a level of expectations for all members of

the school to be at their best on a daily basis. He is constantly questioning students about instruction while making observations in the classrooms, frequently providing expectations for teachers to provide dialogue to students in the instructional process, and systematically creating a learning environment that has high expectations. During an interview, a teacher stated that, “the number one change in our school has been our principal’s leadership; his leadership not only for the students but his leadership as far as this is what I want to see in the classroom and everyone better be doing it.” In conclusion, the principal at Andrews Middle School has established a school community that is family oriented, a student population that is disciplined, and a focused learning environment in which all stakeholders understand their responsibility to the learning process and are held accountable for student success on a daily basis. The quality of leadership is substantial to organization and is the foundation of success to all participants; however, the teachers are also critical elements of success in the facilitation of the school-wide vision. It is important to look at teacher perceptions and organizational themes that solidified during the research.

### **Teachers**

The five teachers that participated in the study were all members of the Andrews Middle School mathematics department. The department chair has 24 years of experience, and the average years of experience within the department is 21 years as specified by the Academic Excellence Indicator System. The teachers at Andrews Middle School have worked together as a department for 14 years. They are extremely comfortable with one another and perpetuate the family concept that is encouraged by the

principal. They meet regularly and share with one another on a daily basis. One teacher at each grade level was interviewed in an effort to research common trends that were prevalent in the departmental structures at Andrews Middle School.

*TIQ, 1: How is your classroom structured? How does this structure motivate African American students to be successful academically in mathematics?*

All teachers commented on three prevailing concepts that revolve around the creation of positive organizational structures within the classroom. All answers were similar and connected to the overall mission and vision of the school. All teachers surveyed spoke specifically to the manner in which students are addressed when arriving in the class as well as throughout the lesson. All teachers emphasized the value of the warm-up process that enables students to be successful on state assessments. Lastly, all teachers elaborated on the school-wide discipline focus as a structural element that makes a difference within the classroom.

All grade level teachers stated that they meet all students at the door and connect with them prior to entering the classroom. One teacher stated that, "I greet them when they walk in at the door. I try to have a personal relationship with them as they walk in." After students enter the classroom they are encouraged to begin to work on a specific warm-up activity. The teachers at each grade level provide a concentrated level of specificity regarding the startup activities that begin the class and the manner in which all students are questioned to ensure that they understand the policies and procedures as well as the content. The teachers commented that the activity takes approximately 5-7 minutes and is the manner in which the educator sets the tone for the lesson process during the 45-minute class period.

Lastly, all teachers talked specifically about the concentration and focus on discipline at Andrews Middle School. One teacher stated that, “I do think that we have strong administrative discipline. If I send a student to the office it will be dealt with. That helps because the students need to know that there are expectations. I believe here that top-down discipline helps a bunch.” There is a concentrated intentional focus of structure and discipline throughout the school that has become a part of the culture and school climate. Students and teachers alike understand the benefits of a structured environment and commented how it has been instrumental in the transformation at Andrews Middle School.

### **Parents**

Andrews Middle School is a school that is regarded as a historical monument and has been a pillar of the community for decades. Many parents that have children at Andrews Middle School also attended the school. Therefore, there is a generational culture that exists with the teaching staff. Many teachers at Andrews Middle School taught their student’s aunts, uncles, and in many cases, parents in the past. Four parents were interviewed during the research. A parent with a child in each grade level was pertinent and provided a comprehensive look at the perceptions and the participation of the community within the school’s practices. The following information provides findings from parents in regards to the structural characteristics that are perceived by parents and the outside community.

*PIQ, 1- Are there any conditions within the school that you believe inhibit or encourage your child from being successful academically in mathematics?*

Parents sincerely believe that Andrews Middle School is effective in educating their children. There were no responses that indicated that any organizational structure inhibited the progress of their children. Many parents provided accolades to the teachers in the establishment of a strong structure that empowers success in their children. Overwhelmingly, parents stated that the arrival of the principal brought a cultural change to the entire school community. The focus on discipline, structure, and a family approach is a successful recipe that many community members found empowering. One parent stated the following:

I think that one of the most interesting and most important things that I have seen is a leader that encourages the teachers to teach the kids to work with them in their school studies, to make sure that the kids get their work and tutorials; really enforcing it to ensure that every child knows that there is something available for them. If they are struggling there is something that is for them to do and they have someone there to help them to further them along in the studies. To have teachers that are concerned and teachers that care about the students, the whole students and everything that involves them.

Parents within the community also stated their appreciation of the discipline systems by stating that, “They are putting their foot down and that is a good thing, when they get out of school and go to college they would grasp everything that they need.” During the interview process, there was a sense of pride that parents exhibited when speaking of the organizational structures that had been facilitated during this principal’s tenure.

### **Focus Group**

The focus group that was interviewed at Andrews Middle School was comprised of five content area teachers. The group is led by a department chair that has approximately 24 years of experience and a staff of math teachers that has collaborated

for 14 years. The focus group has had three principals at Andrews Middle School prior to the current administrator's tenure. They have experienced a tradition of increased academic achievement and explored strategies that motivate African American children to succeed.

*FGIQ, 1- How is your department structured? How does this structure motivate African American students to be successful academically in mathematics?*

Members in the focus group started the commentary by stating that the school structures are communicated in a formal meeting that is scheduled bi-monthly; however, the teachers stated that they speak as a grade level on a daily basis. This daily collaboration has created a distinct rapport that was evident throughout the interview. A teacher stated that, "over time, we have all become friends, we are always jibber jabbering on the phone." The math department functions as a family, each working on specified tasks; nevertheless, all teachers ensure that they communicate identical strategies and activities for students to ensure success. This practice is evident in the facilitation of lesson plans. All lesson plans and warm-up activities are consistent across grade levels and the startup activities revolve around specified TEKS that are designated areas of weakness for students.

The math coach creates and distributes the warm-up activities to each math teacher on a weekly basis to ensure clarity of processes and the grade level teachers discuss the activities during the facilitation of the warm-up throughout the week. For the past eight years, the department has been concentrating on a specified, intentional system that targets students' content area weaknesses. Teachers stated that,

I think that it is good that we all teach the same strategies, going from grade level to grade level, we have things that we teach and at each grade level students see the same strategies. The structure in our classrooms, and management, we also all run our classrooms in the same way.

All teachers have infused the school-wide mission of discipline and structure in their classroom and truly believe that the students at the school benefit from the implementation of positive based discipline structures. During the focus group interview, there were many accolades provided to the incorporation of discipline at Andrews Middle School and how the change has enabled the students to focus on the consistency of strategies that are facilitated. In conclusion, the focus group was a family of educators that believed in the consistency of strategies and discipline at all grade levels. They communicated regularly and have worked together for over a decade. They were positive about the successes of the school and connected to the vision of the principal.

### **Summary**

The leader of the organization has used a variety of strategies that center on family, consistency, instruction, and discipline that has transformed the entire school. There is a distinct trust that is evident between the leader and the teachers. They understand the benefit of a structured program that is consistent for their students and the delivery of strategies that target the areas of student growth. The organizational structures that exist at the school are also evident throughout the parent interviews. All parents commented by stating their satisfaction of the manner in which the school had transformed the community. They also had a high level of trust for the principal as well as the teachers within the school. The organizational structures are foundational to the school operation. They are the nucleus of the school culture and climate; however, the

instructional process is the catalyst for academic success. It is, therefore, important to look at the instructional factors that are prevalent at Andrews Middle School that foster increased academic achievement for African American students.

### **Instructional Factors That Promote Success**

Instructional practices have been researched for centuries because of the importance and value in regards to student achievement. The delivery of teaching strategies by the educator and the acquisition of information from the student is the premise of teaching and learning. The schools that have streamlined these specific processes are usually regarded as exemplars and models due to the complexity of variables that are present in a traditional at-risk classroom that is comprised of students of color. During this phase of the research, there will be a concentration on instructional practices that have been proven to be successful at Andrews Middle School. This portion of the findings will also be categorized in a manner that allows specified findings for all stakeholders of the school community. Administrator, teacher, parent and focus group perceptions will be explored and a conclusion at the end of the section will be provided to encapsulate the findings of the school community.

#### **Administrator**

The next facet of the research investigated the instructional factors that promoted academic success for African American students in mathematics. The following questions were solicited from the principal in an effort to look specifically for distinct instructional strategies that existed at the school.

*AIQ, 2, 3: What qualities and instructional skill sets must leaders possess to ensure that African American students are academically successful in*

*mathematics? How does teacher quality affect African American students' academic success in mathematics?*

The principal's comments revolved around the concepts of quality, consistency, and dialogue. The principal began the interview by stating that teacher quality is critical to the development of a comprehensive instructional plan that focuses on student learning. He stated that he is very cognizant of current retention research and believes that his job is to hire and retain great teachers. The principal commented that teacher mobility is low at Andrews Middle School due to the organizational structure that exists in the school. In the past three years, the school has replaced only four teachers at varying grade levels and many teachers have taught at the school for over 25 years.

He also stated that it was extremely important to create a learning environment in which consistency is communicated in and out of the classroom. Based on his own teaching experience, he incorporated the startup activities across grade levels that specifically target areas of growth. He believes that students should focus on areas of growth that are designated in the data analysis of previous state assessments. He believes that a 5-10 minute activity each day that targets TEKS objectives is pertinent to the success of students. The principal also works with the teachers to create specific test-taking strategies that could facilitate the warm-up each day. He believes that the consistency of the activity and the test taking strategy would be a determinant for success for students. He also commented concerning the daily coordination of teachers at the campus to teach the same information at each grade level to ensure continuity throughout the lesson implementation process. It was important that all teachers taught the same test-taking strategy and that the teachers at each grade level taught similar content at the

same pace. The principal stated that this consistency over an 8-year period was an apparent indicator for academic success for the students at Andrews Middle School.

Another attribute that was critical to success centered on the dialogue and questioning process. The principal stated that many teachers usually question students that are apt to raise their hands and in many cases have the correct answer. The principal encouraged the teachers to question students that were not aggressively answering questions and students that were uncomfortable with the subject matter. He expected that all students be questioned throughout the lesson in a variety of contexts. He also focused on avenues of dialogue in which teachers encouraged student responses through a series of specific questions. The principal hired outside consultants to provide staff development that teach the teachers specific ways to conduct effective dialogue with students who are not inclined to answer questions. The principal continued the process by observing teachers and offering feedback concerning his expectations of dialogue. The principal stated that in the beginning it was a new concept that received resistance; however, with the success of the school on state assessments, it became a part of the instructional culture and school climate.

### **Teachers**

During the grade level teacher interviews, the following questions were utilized:

*TIQ, 2,3: How has your African American students' mathematics scores progressed in the past years? What are the best practices that you have implemented in your classroom this year to encourage African American students to be academically successful in mathematics?*

The teachers at each grade stated that their progression of scores was primarily due to the consistency of strategies at each grade level and the complexity of the

strategies and dialogue processes used in the classroom. A teacher provides an example by stating the following:

We meet at the door with the warm up, when they come into class they immediately take out their homework, they put it on the desk, they have a folder waiting for them at their desk that has a pink formula chart. This is the same formula chart that they will see on the test in the spring. Then they start working their warm-up problem, when they are working their warm-up problem they are showing all of their work and strategies, which are written on the board in my classroom. After they read the problem, they underline the question or highlight. They also underline or highlight any important concepts, they circle key words, and then they write their IWTK, which means I want to know. IWTK is a summary of what the question is asking, we try to get them to summarize in five words or less. To make them focus in on what the question is asking them. After they have done that, then hopefully they know how to work their problem. If it has multi-steps, we do something called sequencing. They write their steps on the side of the paper. It is nothing real long, it is real short. This takes the first 6 min. of class, we focus on the students repeating back with they know.

Due to the specificity of information that was provided by all the teachers at each grade level, it was apparent that they were knowledgeable not only in the content area, but in the facilitation of strategies that were effective with teaching students. During each interview, there were similarities in the warm-up process as well as in the entire lesson cycle.

### **Parents**

The interview questions for the parents specifically focused on their children's performance. All parents were provided with specific information regarding the questionnaire as well as a copy of the approved International Review Board letter. Parents were reminded that their participation was voluntary and that they could ask a question at anytime.

*PIQ, 2: How has your child progressed academically in mathematics? What challenges and successes has he/she had during his or her time at this school?*

There were a variety of answers that parents expressed regarding the progress of their children at Andrews Middle School. Approximately fifty percent of the parents stated that their children struggled with mathematics, while another fifty percent commented that their children did well in the content area. All parents agreed that the tutoring program at Andrews Middle School has been an underlying resource that has enabled their children to be successful. One parent commented that the mandatory tutorials assisted her son in the development of mathematical strategies that increase his academic achievement on the TAKS test. All parents also agreed that the teachers worked extremely hard to facilitate effective strategies in the classroom. There was an overwhelming sense of support that they felt from the teaching staff at Andrews Middle School.

### **Focus Group**

During the math department focus group, the teacher's information that was given provided another caveat to the intentionality of instructional practices at Andrews Middle School.

*FGIQ, 2, 3, 4: How has your African American students' mathematics scores progressed as a department in the past five years? What do you believe has attributed to this trend? What are best practices that you have observed that work for African American students?*

The teachers within the group displayed a math progression chart from district benchmark scores and spoke specifically to the benchmark results and the modification of practices that occur once the assessment results are distributed. The teachers also stated that specific teachers are placed at certain grade levels based on their expertise of

instructional practices and student objectives in the content area. This designation has resulted in three teachers teaching sixth grade, one teacher teaching seventh grade, as well as one teacher teaching eighth grade. Based on the teachers' commentaries, this progressive design has produced great academic achievement for African American students at Andrews Middle School. The teachers agreed that the school's family culture, strong sense of discipline and structures coupled with the consistency of school-wide instructional strategies facilitated by teachers that are placed in areas of strength was the major set of factors that are at work in the success of students at Andrews Middle School.

### **Summary**

The findings substantiate that there is a very deliberate structure of instructional delivery at Andrews Middle School. Interviews confirm that the school has been crafted to have a learning environment that focuses on individuals being a part of the whole school community. There is also a structure of school-wide strategies at each grade level that infuses the consistency of instructional practices. The teachers at Andrews Middle School are experienced and are satisfied with the current administration and learning community. Staff mobility rates are extremely low due to the commitment of the principal to the positive culture and climate of the school. The findings assert that the principal understands the complexity of the instructional process and has crafted a school that is producing increased academic achievement. There is also evidence that strong organizational and instructional structures exist in the development of African American student skill sets in mathematics. It is, however, important to look at how these factors foster faculty sponsorship and student leadership grouping. All administrators, teachers,

and focus group members were provided questions during the interview process that analyzed the school's facilitation of faculty sponsorship and grouping as well as networking. The researcher will examine the findings and make specified conclusions concerning the processes impact on African American achievement in mathematics.

### **Faculty Sponsorship**

On each interview questionnaire that was provided to the principal, teachers, and focus group, it became critical to evaluate teacher sponsorship and the creation of a mechanism in the school community that encourages the connection between students and teachers. The following question was solicited from each participant to begin the examination process:

*AIQ, TIQ, FGIQ, 4, 4, 5: Is there teacher sponsorship or mentoring of African American students? Do you believe that sponsorship makes a difference?*

All participants at Andrews Middle School agreed that teacher sponsorship was vital to the academic development of African American students. The principal as well as the teachers spoke specifically to the connection that has been initiated and how students feel comfortable to speak with teachers on varying levels. Teachers also stated that due to their extensive experience at Andrews Middle School, they have connected to the students through other family members that they have taught in the past. One teacher spoke to her care and connection to the students by stating.

They also know that we care about them, and I will get emotional talking about this (crying). I know that these kids do not have the same home life as others, when I come here I teach these kids like I would like my children to be taught. I treat my children at school like I treat my children at home; they know that we care about them. We even tell them that we love them, this is the place where they will probably only will have a person tell them that they love them. They can talk to us about anything; we are quick to give incentives, to say that we are

proud of them. We get more a personal level. Whether we are congratulating you or chewing you out over something, we are doing it because we care.

During the interview, the teacher began to cry when speaking specifically about her children and her feelings about their high achievement within their challenging environments.

All interviews communicated a collective concern and sponsorship of students at Andrews Middle School. The principal's daily message to students in the auditorium as well as the incentives that are provided every six weeks attributes to the fact that the leader intentionally sponsors students. The teachers' emotion and care when speaking about their students and the concern for the students' environment was evidence that they truly felt connected to their students. However, in regards to formal mentoring structures at Andrews Middle School, there were no formal mentoring programs initiated. There was no evidence of a structure that was created that encouraged mentoring or sponsorship.

### **Student Leadership Grouping and Networking**

The research investigated a variety of aspects that revolved around the development of student grouping and networking opportunities for students and the determination if the grouping processes were effective. A specific question was provided to all participants in the study to look at elements of student grouping that exist at Andrews Middle School.

*AIQ, TIQ, PIQ, FGIQ: Do African American students have access to networking opportunities or grouping activities inside the classroom? What activities or organizations have you observed to be effective with African American students?*

All participants agreed that most of the students at Andrews Middle School participate in Texas UIL (University Interscholastic League) activities. School class organizations such as band, choir, dance teams and sports activities were regarded by the participants in the study as groups that had high participation percentages of African American students. The principal of the school commented that he has increased the number of students that participate in more instructional competitions that are sponsored by the University Interscholastic League. He stated that it is important to expose students to instructional competitions at an early age. He spoke in depth concerning the need for students to be involved in competitive instructional competitions and sports.

However, as a school, there was no evidence of an extensive facilitation of leadership grouping activities and the interviews confirmed that African American students were generally interested in sports. One teacher stated that, “We did not have a whole lot of organizations, but we do push athletics and sports.” In regards to the classroom, Andrews Middle School had a very traditional approach in the instructional delivery of the content. Most classes consist of rows rather than cooperative grouping centers. The facilitation of the content is a complex system of dialogue and questioning that all students were involved in to ensure comprehension of the information. When asked about the facilitation of grouping in her class, a teacher stated that,

I don't group students not nearly as much as I should, most of my instruction is direct teaching but we take a lot of time in dialogue. The other day we spent the entire class period questioning why and specifically dissecting the problem. The children come from elementary with good skills, but we have to develop their thinking.

An inordinate amount of the student's time at Andrews Middle School is spent dialoguing with teachers rather than with other students.

### **Summary**

The research findings represent a high level of faculty sponsorship at Andrews Middle School. Teachers in the math department have taught at Andrews Middle School for decades, which has fostered a connection with the students and the community. The instructional school-wide strategies encourage consistent dialogue with students, which inadvertently strengthen and increase the faculty sponsorship. The findings, specifically in the focus group, communicated a deep level of care and sponsorship for the students. The teachers felt that the acquisition of knowledge was important; however, the word "love" was expressed over and over again when referencing their students. They truly wanted their students to be successful in life and would do whatever necessary to accomplish this goal. Grouping, on the other hand, was not prevalent throughout the entire interview process. No one disagreed the importance of grouping and felt that it was beneficial to students' aptitude; however, there were no substantial school-wide efforts that focused on student leadership group and networking. The school organization was primarily comprised of a place where children felt safe, connected, and understood the high level of expectations.

### **Belief Systems**

Perceptions and beliefs are vital and underlying factors in the overall education of African American students. Administrators, teachers, and parents' belief systems and knowledge can be extremely beneficial to the students. The theory of cultural capital

emphasizes a direct relationship between parents' knowledge and student matriculation and how both are interconnected in the elevation of a student's standing in society (Bourdieu, 1986). It is important to investigate an individual's belief systems to systematically understand their perception and how their belief system positively affects student learning. Each interview questionnaire was created to analyze organizational, instructional, faculty sponsorship and grouping characteristics; however, it is also important to look at belief systems because these constructs are the foundation of cultural capital (Bourdieu, 1986). What a person believes to be is their ultimate perception and their beliefs shape the children that they encounter providing students with varying levels of cultural capital (Bourdieu, 1986). Each instrument examined the participant's beliefs regarding the education of African American students, particularly, as it related to the aptitude of African American students in mathematics as well as the growing achievement gap.

Administrators, teachers, parents and the departmental focus group were asked the following question regarding African American students' academic success in the subject of mathematics:

*AIQ, PIQ, TIQ, FGIQ: What is your belief of the current state of African American students' academic success in mathematics? What do you believe needs to change to encourage African American students to be academically successful in mathematics?*

All participants in the study attributed the growing achievement gap to environmental and social factors that are associated with children that are educated in at-risk, low-socioeconomic areas. The principal stated that he believed that the students at

Andrews Middle School needed counseling due to the varying degree of challenges that exist in the community,

African American students need lots of counseling, lots of love, lots of motivation and lots of attention and one-on-one care. Our kids need nurturing and love. We have so many that have no biological father in the home. These students are being raised by mothers, aunts, uncles and grandparents.

The principal believed that by creating a loving, nurturing environment that was systematic and exuded high expectations African American students could be academically successful.

Teachers at Andrew Middle School comments also revolved around the challenges that face the community and the lack of assistance from parents at home. One teacher commented by stating that,

I truly think it starts in the home, I truly do. We are doing everything that we can think of in the school to close that gap, but I think a lot of it starts in the home. So many of our children do not go to bed at nine o'clock at night. They go to bed at one or two o'clock in the morning, they are on their cell phones at all times of the night.

The same teacher added this statement: "You just push, you have to be their support system, you have to constantly push them to be better." Teachers believed that they were responsible for filling in the gaps in the lives of their students. They believed that the students should be held to high expectations regardless of race or situation. Many stated that a major challenge was the parents' inability to assist their children at home with mathematics. They felt that parents generally cared about their children and would help in discipline-based situations; however, students usually relied on older siblings to assist with math homework.

The teachers concluded that due to the lack of support at home, there was an unanimous need to focus on high expectations throughout the educational process. They believed that their children could be successful and did not accept mediocrity. One of the most successful math teachers at Andrews Middle School stated that,

There are many people that say that white teachers cannot teach black children, I don't believe that. As far as African-American kids, I think that too many people make excuses for them. I understand the challenges, but that doesn't make a difference when they get into the real world. If anything, it makes that struggle harder, they have to work harder, and we talk about it, one of the first things I say to my new kids is look, I'm white and you are black, bingo, then we all discuss it, get it out in the open, because once they realize I did not have the racial hang-ups they don't either.

The findings present overwhelming evidence that students connect to teachers not because of race, but because they are a part of an environment that communicates care, high expectations, and success.

Parents generally agreed with the principal as well as teachers in stating that the environment perpetuates a variety of challenges for students at Andrews Middle School. Parents believed that the structures at the school created an equal playing field for their children, which has empowered school-wide success. Parents believed that if their children were given similar resources as their affluent peers, they would be successful as well. All parents that were interviewed participated in their children's education and were willing to assist in any way possible to help their children. Many stated that they were unable to help their children in math and ensured that their children participated in tutoring opportunities. When asked:

*PIQ, 4- What were your experiences with mathematics in middle school?*

Over 70% of parents commented that they did not do well in mathematics. They stated that they did what was necessary. Only one parent commented that she was successful in mathematics primarily due to her father's focus on the content area. She also stated that her older siblings assisted at home and would come to her school and tutor her at the end of the day. She reiterated that she had teachers that were truly concerned about her education, "In our day, the teacher cared about you and students need that because I don't know an educator that can teach and do not care about their students. Teachers were dynamic, teachers were dedicated." Parents at Andrews Middle School were cognizant that they were unable to assist their children; however, they believed that the school was doing whatever was necessary to ensure that their children were successful.

### **Conclusion**

Belief systems are the foundation of an individual's perception and behavior (Bourdieu, 1986). A person's knowledge and behavior are the premise of the cultural capital that they communicate to children. Whether positive or negative, cultural capital is perpetuated to children through their outside community as well as the members within their social circles (Bourdieu, 1986). The findings present that administrators, teachers, and parents at Andrews Middle School acknowledge the challenges that exist in the community; however, they have found a way in which to work together to ensure the success of the students at the school. They attributed a variety of factors to the achievement gap that continues to inhibit African American students to compete with their peers; however, they have created a system that has traditionally empowered the

students at Andrews Middle School to far exceed the academic achievement of other ethnicities in many Texas middle schools.

The findings conclude that Andrews Middle School is led by an experienced principal who has created an organizational structure that promotes positive structures and has worked with teachers to facilitate an instructional framework that is consistent, intentional, and places individuals in targeted areas for the success of all students. Faculty sponsorship is evident in the passion and care that all teachers commented regarding their students at the school. Teachers believed that students could be successful and held each child to a high level of expectations daily. Teachers also focused on dialoguing with students to infuse the content as well as connect with all children in the classroom. The interview process confirmed that faculty sponsorship was instrumental to the success of African American student progress at Andrews Middle School. In regards to grouping, however, there was not substantial evidence of a number of grouping activities at the school. All participants commented the need for and value of leadership grouping in the educational process; however, they had not established a variety of networking opportunities for students at the school. Many African American students participated in sports-based activities and due to the success of the school's efforts many stakeholders did not pursue additional grouping and networking as avenues to academic success.

Andrews Middle School is one of two schools in the State of Texas that is predominantly African American and traditionally successful. The findings support that there are a variety of organizational, instructional, and faculty sponsorship-based

structures that have been established that have supported the learning process for students at the school. Teachers have provided information that substantiates a deep sense of family and community and the findings support that the parents believe in the vision of the principal. Andrews Middle School represents an example of a high-performing school and the elements that are attributed to success. It is important, however, to look at elements that are indicative of marginal middle schools in Texas and make comparisons.

### **Jackson Addition Middle School**

Jackson Addition Middle School is comprised of 748 students; the school's demographics are 28.6% African American, 54.5% Hispanic, and 15.0% Caucasian. Over 75.9% of all students at Jackson Addition Middle School are economically disadvantaged. There are approximately 68.4 staff members at the school; 15.5% African American, 7.0% Hispanic, and 64.2% Caucasian. The average experience level of a teacher at Jackson Addition Middle School is 5.6 years and the teacher to student ratio averages at 13.8 students. The school is in one of the fastest growing areas in the region and the school was recently built seven years ago. Jackson Addition Middle School community was initially rural; however, due to its location, it has become urban within the past 15 years. The district neighbors a metropolitan city and has received many families that have chosen to live in the inner city. A school that was mostly Caucasian has changed within a 10-year period and has become majority minority.

**Data**

Table 9 below shows Jackson Addition Middle Schools mathematics scores over a 10-year period.

Table 9

*A Multi-Year Academic History from 2002-2011*

Campus:	52790741				
Campus Name:	JACKSON ADDITION MIDDLE				
District Name:	CENTRAL TEXAS ISD				
County Name:	CENTRAL				
TAKS Mathematics					
Years	2002	2003	2004	2005	2006
ALL Students	85.5%	44%	43%	46%	53%
African American	76.8%	37%	28%	34%	43%
Hispanic	84.6%	32%	34%	36%	48%
White	91.9%	62%	66%	74%	75%
Economically Disadvantage	86.5%	33%	34%	38%	47%
Years	2007	2008	2009	2010	2011
ALL Students	54%	62%	69%	71%	75%
African American	41%	56%	61%	64%	67%
Hispanic	54%	58%	68%	70%	77%
White	75%	86%	85%	85%	79%
Economically Disadvantage	49%	57%	65%	67%	72%

The data at Jackson Addition Middle School shows an incremental positive increase of achievement of African American students in mathematics over a 5-year period of time. In the past five years there has been a 26-percentage point increase of improvement for African American students and a 23-percentage point increase in economically disadvantaged.

The next data sources will look specifically at the teaching demographics to analyze specific characteristics that are vital to the success of African American students. The following table presents the data.

Table 10

*2010-11 Campus Performance Report--Staff Member Experience Levels*

Campus:	52790741			
Campus Name:	JACKSON ADDITION MIDDLE			
District Name:	CENTRAL TEXAS ISD			
County Name:	CENTRAL			
Teachers by Years of Experience	Count	Percent	District	State
Beginning Teachers	7.0	12.9%	9.6%	6.0%
1-5 Years	30.4	56.0%	50.1%	30.0%
6-10 Years	7.0	12.9%	18.5%	21.1%
11-20 Years	7.9	14.5%	14.5%	25.0%
Over 20 Years	2.0	3.7%	7.3%	17.9%
Average Years of Experience of Teachers	5.6 Years			
Average Years of Experience of Teachers in Mathematics Department	5.4 Years			

Looking specifically at the aforementioned table, there are a variety of identifying characteristics that have substantial implications in regards to the study. Approximately 81.8% of teachers at Jackson Addition Middle School have 0-10 years of experience. Particularly, in the 1-5 year ranges, 56% of all teachers at the school are in this category. Subsequently, 18.2% of the entire staff at Jackson Addition Middle School has 11 to over 20 years of experience. The school as a whole experiences an average of 5.6 years and the math department specifically averages an experience of 5.4 years. The implications of a group of individuals with an average of 5.4 years of experience has a number of implications, however, it is important to look at more demographics information to examine other variables for success.

Table 11

*2010-11 Campus Performance--Staff Demographic Report*

Campus:	52790741			
Campus Name:	JACKSON ADDITION MIDDLE			
District Name:	CENTRAL TEXAS ISD			
County Name:	CENTRAL			
Teacher by Ethnicity	Count	Percent	District	State
African American	8.4	15.5%	12.7%	9.3%
Hispanic	4.0	7.4%	21.9%	23.7%
White	34.9	64.2%	56.3%	63.9%
American Indian	0	0%	1.2%	0.4%
Asian	2.0	3.7%	1.2%	1.3%
Pacific Islander	5.0	9.2%	5.1%	0.1%
Ethnicity of the Math Department	Count	Percent		
African American	2	28.5%		
White	5	71.5%		

The following data shows a high concentration of White teachers at Jackson Addition Middle School that aligns with the State of Texas percentages. The school also has a lower percentage of Hispanic and African American teachers compared to the State of Texas as well as Central Texas Independent School District. In regard to the math department, there are an overwhelming percentage of White teachers as opposed to African American. The implications of these data set raises questions and sets the tone for the upcoming findings for Jackson Addition Middle School. In conclusion, it is important to look specifically at data for identifying characteristics of each school prior to the findings to understand the context that exists in each school community. The data substantiates that Jackson Addition Middle School is a school that has a positive trend of academic growth. The school is primarily composed of teachers that have 0-10 years of experience. Particularly, the math department has an average of 5.4 years of experience. The experience levels in the department range from 0-8 years.

The data segment of the findings has provided substantial information regarding a subset of characteristics concerning Jackson Addition Middle School. The next facet of the findings will look specifically at organizational characteristics that are prevalent at the school. Due to the format of the interview questionnaires, the findings will be divided into four basic sections that will provide clarity of data gathering. Thematic interview findings from administrators, teachers, department focus groups and parents will be examined to look at organizational factors that are associated in the academic achievement of African American students in mathematics. Specific questions, answers,

and quotes from each questionnaire will be examined to provide an understanding of the elements of success at Jackson Addition Middle School.

### **Organizational Factors That Promote Success**

The research revolves around the implementation and facilitation of positive organizational structures that motivate African American students to be successful academically in mathematics. A variety of interview questions were created in each questionnaire to solicit information regarding organizational systems and structures from each participant in the study. Administrators, teachers, focus groups and parents were given specific questions that focused on the creation of positive organizational structures. In this section, there will be a concentrated focus on the questions and the information that was provided from each participant.

#### **Administrator**

The principal of Jackson Addition Middle School is an educator with 7 years of experience. He started his career as an Advancement Via Individual Determination (AVID) teacher at Jackson Addition Middle School. After four years as a teacher at Jackson Addition Middle School, he received an assistant principal's position at a high school in the district. As an assistant principal over the ninth grade center, he was able to learn a variety of strategies, and facilitate a curriculum that served over 500 students. He created an infrastructure of the ninth-grade center and supervised approximately 14 staff members. He was appointed the principal of Jackson Addition Middle School in 2012 and was selected based on his positive work at the high school as well as his familiarity with the school community. Jackson Addition Middle School is currently an

“Unacceptable” school based on state standards in student annual dropout rate. There have been three principals at Jackson Addition Middle School within the past five years. The current principal has spent the first semester acknowledging success and fine tuning areas of growth within the school community. The principal has also restructured the administrative staff; all members are new to the school and were chosen based on the areas of need that were prevalent at the time. The principal has also surveyed and interviewed staff members in an effort to look specifically at strategies that can be effective at the school in the present and future academically. The principal is extremely positive about the direction the school is taking and has begun to incorporate a series of initiatives that he believes will change the culture and climate of his school.

The following information is a compilation of the interview questions that focused on the creation of a positive organization that perpetuates success for African American students.

*AIQ, 1: What organizational structures do you believe encourage African American students to be successful academically in mathematics? How have you organized your school to ensure this success?*

The principal stated that the facilitation of the Positive Behavior Interventions and Support Program has created a variety of underlying communication structures between African American students and teachers in the classroom. He stated that the program teaches educators to look past negative behaviors and focus on the positive patterns that are exhibited by the students in the classroom. The principal stated that,

Positive Behavioral Intervention Systems (PBIS), I think is big in setting up a rapport with students and teachers, and I think it is the expectations of the course. As cliché as it sounds, the higher you set the expectations, the higher the students

will achieve. So we communicate those expectations and we involve the family as often as possible.

The findings substantiate that the principal at Jackson Addition Middle School is in the process of establishing a school-wide system that addresses effective organizational strategies that encourage African American students to be successful.

### **Teachers**

The teachers that participated in the study were all members of the Jackson Addition Middle School math department. The department chair has 8 years of experience, and the average years of experience within the department is 5.4 years as specified by the Academic Excellence Indicator System. The teachers at Jackson Addition Middle School have experience levels that range from 8 years to 4 months and are in the process of establishing relationships as a department. They meet on Mondays to discuss effective strategies and best practices that can empower students to be successful. One teacher at each grade level was interviewed in an effort to research common trends that were prevalent in the departmental structures at Jackson Addition Middle School.

*TIQ, 1: How is your classroom structured? How does this structure motivate African American students to be academically successful in mathematics?*

Teachers at Jackson Addition Middle School agreed that the facilitation of collaborative grouping has made a substantial difference in the academic performance of students at the school. A sixth-grade teacher stated that, “most of my classroom structure is in either small groups or pair work, where students have the opportunity to bounce

ideas off of one another or work out problems together and I think that helps them to understand a little bit better.”

A seventh-grade teacher commented that,

We work as a group, we do a lot of group work, for the most part, I let them choose their own partner, but at times I group them with who I believe would benefit them. I put someone high and someone low together, I think that that helps them a lot; I do a lot of real-life examples, and real-life experiences. I try to think of things that relate to African-American students and explain it that way.

All teachers referenced the district-wide implementation of Project Based Learning and the indicators for success within the program. At each grade level, teachers incorporate a system by starting the lesson with a guided question that students work together in groups to solve. Each child within the group setting has a specific role in the research process and works as a group to ensure that they gather enough information about the guiding question prior to presentation.

At the end of the project, the students within the group are expected to present their findings. A teacher stated that,

In our district we are leaning toward project-based learning. We have already done one project this year that was a school-shopping project where students are trying to get a better understanding of how much it costs to buy school supplies. We cover order of operations and other mathematical concepts during the project.

All students at Jackson Addition Middle School are familiar with the grouping process and classrooms are configured in cooperative grouping centers that encourage the networking process. During the focus group, all teachers began to talk specifically about their facilitation of the grouping process and how their lessons are tailored for children of color. The findings substantiate that students and teachers alike understand the benefits of an environment that values grouping as well as networking and commented how it has

been instrumental in the increased academic achievement of African American students at Jackson Addition Middle School.

## **Parents**

The parents that were interviewed had children at a number of grade levels at the school and commented accordingly. The following information provides findings from parents in regards to the structural characteristics that are perceived by parents and the outside community.

*PIQ, 1: Are there any conditions within the school that you believe inhibit or encourages your child from being successful academically in mathematics?*

The information that was provided caused mixed perceptions regarding the facilitation of structures to encourage parent participation at the school. Approximately one half of the parents interviewed stated that the school is doing the best that they can with their children and referenced the tutoring program as an instrumental program that has increased the students' academic growth in mathematics. A parent stated that,

Teachers are great at providing tutorials in the morning and afternoon. They are good about sending e-mails to remind us at home. They usually e-mail me to say that my son needs to work on his mathematics and I believe overall that is what has really helped him get up those low grades up because the only class that he has ever been low in is mathematics.

There are parents at Jackson Addition that feel that teachers are working hard to ensure that children are academically successful. At the same time, fifty percent of parents felt disconnected from the school and that teachers did not inform them of strategies that can be facilitated at home. A parent stated that,

I spoke to one teacher and I have to e-mail her to tell her that I needed her to call me ASAP when my son is not doing what he is supposed to do in her classroom. I had a good rapport at his elementary school. All the teachers knew me at his

elementary school, when I walked in they all recognized because I was there, and at this school I don't have that. I just started talking to the principal, and now it is getting better with him. I don't have a rapport with the teachers and I understand that they have a lot of children and it is hard to be a teacher, but they can e-mail, I have a Blackberry and it comes directly to my phone right when it happens, I want to know what's going on.

During the interview process, it was evident that parents were interested in their children's academic performance and communicated the need for communication structures that could keep them abreast of what was needed to assist in the instructional development of their children.

### **Summary**

Jackson Addition Middle School is a school that has been in transition for the past five years. The new principal is taking some time to assess the strengths and areas of need within the school prior to implementing additional programs. The Positive Behavior Intervention and Supports Program has been a foundational initiative that has assisted teacher communication strategies with students in the classroom and is working to connect teachers with students of color at the school. Classroom grouping and networking is also an organizational structure that is evident that has been proven to be substantial in the progression of scores in mathematics at Jackson Addition Middle School. All teachers infuse Project Based Learning within their lesson cycle to group students and establish a research environment in which students analyze prescribed objectives to solve a guiding question.

Students are also expected to present their findings to the entire class during the mastery phase. In regards to parents, fifty percent feel connected to the school, while another half felt disconnected due to a lack of communication structures. It is important

to look at additional structures at the school to determine patterns and conclusions that are attributed to the success of African American students. Organizational structures are the foundation of school operation. They are the nucleus of the school culture and climate; however, the instructional process is the catalyst for academic success. It is therefore, important to look at the instructional factors that are prevalent at Jackson Addition Middle School that foster increase in academic achievement for African American students.

### **Instructional Factors That Promote Success**

Instructional best practices are directly related to the academic achievement of students. Schools that are consistent, intentional, and focused regarding the teaching and learning processes score higher than their peers due to their ability to deliver instruction. During this phase of the research, there will be a concentration on instructional practices that have been proven to be successful at Jackson Middle School. This portion of the findings will also be categorized in a manner that allows specified findings for all stakeholders of the school community. Administrator, teacher, parent and focus group perceptions will be explored and a conclusion at the end of the section will be provided to encapsulate the findings of the school community.

#### **Administrator**

The following questions were solicited from the principal in an effort to look specifically for effective instructional strategies that exist at the school.

*AIQ, 2, 3: What qualities and instructional skill sets must leaders possess to ensure that African American students are academically successful in mathematics? How does teacher quality affect African American academic success in mathematics?*

The principal stated that since he has been at Jackson Addition Middle School, he has focused on listening to stakeholders in the learning community and is assessing the various systems and structures that have been successful. His commentary focused on the structure of the school and how it is designed for student learning. Jackson Addition Middle School has tried to focus on how to facilitate the team approach within its building structures. The school is composed of three distinct floors that have a group or pod of classes on each side of the floor that services a team of teachers. The students within the team circulate through similar teacher classrooms and have two elective courses that are designated by the General Information Bulletin. The teachers in each team are able to plan together as a team as well as a grade level. The principal also spends time developing relationships with teachers in order to improve the culture and climate of the school.

Many teachers have worked at Jackson Addition since the school was built in 2006 and they believe in the success of students. When questioned about teacher quality, the principal stated that,

I would attribute our success to the nucleus of the staff. There is a group of people that have been here that has persisted through a change in administration in a short amount of time and I know that they stay because they believe in what Jackson Addition Middle School can be. They have seen this school perform high as well as well low, and they want to be a part of the change of our culture to be top performing.

The principal continued by providing a timeline of initiatives that he plans to implement in the future to ensure that all children are academically successful in his school. He believes that the teachers' value instruction and his future goals will revolve around the continuity of teaching strategies at all grade levels.

## Teachers

During the grade level teacher interviews, the following questions were provided to them:

*TIQ, 2, 3: How has your African American students' mathematics scores progressed in the past years? What are the best practices that you have implemented in your classroom this year to encourage African American students to be academically successful in mathematics?*

All teachers at Jackson Addition Middle School agreed that their African American students have traditionally scored lower than their peers in mathematics. They acknowledged a progression in scores annually; however, felt that there were apparent challenges in the academic achievement of African American students. The teachers attributed the performance to a variety of factors. One teacher stated that, "It is a lot to catch up on, the big gap between the groups." A lot of students are missing the basics, addition, subtraction, multiplication, and division, and no one at home works with them on their assignments". Another teacher agreed by stating that, "I don't call parents and they don't care about their children, all parents care about their children. I think they don't know what to do, and I don't think they have the skills to help the children at home, but they do want their children to be successful." Teachers also commented to a lack of discipline procedures in the past that prevented progression of student academic achievement.

Teachers that were interviewed felt that the challenges that existed inhibited African American student academic growth; however, they were hopeful and believed that the new administration was working diligently to ensure that all students at Jackson Addition will be successful academically. Lastly, all teachers felt that the development

of grouping was instrumental throughout the years of school-wide transitions. They believed that the success of the students was in the development of a group approach in which students were intentionally grouped together to collaborate and network to solve a mathematical objective. When questioned about the validity of collaboration and grouping, one teacher stated that,

I try to mix it up between practice and activities so that the practice is important as much as activities. They need hands-on activities; they need to understand that there is a reason why they are learning things. I believe our kids are not motivated to learn if they don't feel like they will use it. They want to learn things that are of value to them, and will be a value to them in the future.

The findings substantiate that Jackson Addition Middle School is a school that has had challenges; however, the teacher facilitation of grouping processes has made a difference in the achievement of African Americans students in mathematics.

## **Parents**

The interview questions for the parents specifically focused on the academic performance of their performance.

*PIQ, 2: How has your child progressed academically in mathematics? What challenges and successes has he/she had during his/her time at this school?*

Based on commentary that was provided, approximately 70% of the African American students struggled academically in mathematics. Parents attributed the children's challenges to a lack of communication from teachers about the children's progress as well as their child's attention and daily practice in mathematics. A parent stated that,

In mathematics he has started to struggle in it, I don't know if it is his work, but we don't get any calls home from his teacher until it is too late. We just got a letter, but he already had a 68. He struggles in math, I don't know why, because

every other subject he gets A's and B's. He seems to have a problem with multiplication and fractions.

Another parent commented that,

I have two different students, I have one student in seventh grade that needs little to no direction and I don't have to check up on him. He can pretty much catch it and go. My eighth grader on the other hand is the one that doesn't pick up those concepts and do not have a lot of direction when it comes to his studies. Definitely math is one of his weaknesses, with him it is a matter of putting in the time.

The parent believed that to be successful in mathematics, it takes the child at least 30 minutes each night to practice. Despite the mixed messages regarding communication, all parents agreed that the teachers were working hard to ensure that their children were successful and were advocates of the collaborative grouping that was facilitated in the classrooms. They also did not make excuses for their children and felt that it was important for their children to work hard and do what was necessary to be successful. A parent commented,

The teachers are pretty good. In my son's case, he does not clearly understand the information and he does not open his mouth to say that he does not understand the information. He does not get his work in on time because he did not completely understand the information. He did not take steps to ask the teacher, and get to the tutorials; that is his biggest problem.

The interview findings suggest that communication barriers exist between parents and teachers; however, parents generally perceived that teachers were doing their best to educate the students at Jackson Addition Middle School.

### **Focus Group**

During the math department focus group, the following questions were provided to the teachers.

*FGIQ # 2, 3, 4: How has your African American students' mathematics scores progressed as a department in the past five years? What do you believe has attributed to this trend? What are best practices that you have observed that work for African American students to succeed in mathematics?*

The teachers agreed that the analysis of data is vital at Jackson Addition Middle School. They look specifically at student data to determine specific objectives that are areas of growth for students. They also commented how their tutorial programs are tailored specifically for students that struggle with mathematics. They attributed the progression of the scores to the work in the classroom as well as the morning and afternoon tutorials that are crafted to simplify the concepts for students. They also stated that it is important to relate to students and establish a connection. The department chair stated that, "I also believe that if you have a personal connection with the students it makes a difference. I spend ten minutes in the beginning of the lesson being Mommy so that I can be a teacher." Based on the findings, the focus group felt that African American students needed additional reinforcement before and after school as well as a sense of connection with the teacher.

### **Summary**

The development of collaborative grouping as an instructional strategy is very deliberate at Jackson Addition Middle School. All math classrooms are structured in an approach that focuses on Project Based Learning in which the students are ingrained in the process of "learning by doing." Subsequently, there has been a progression in all students' mathematics academic achievement during the past five years. The social capital that is provided within the grouping processes is evident; there are, however, systematic school-wide instructional structures that have diminished due to the changing

administrations in the past few years at Jackson Addition Middle School. The transitions of leadership have created gaps in the instructional structures that perpetuate the accelerated success of African American students. The new principal is working on reestablishing communication structures that can be effective in changing the perceptions of parents and the community as well as increasing the teacher awareness of instructional strategies that can be successful in the classroom.

### **Faculty Sponsorship**

All administrators, teachers, and focus group members were provided a question during the interview process that analyzed the school's facilitation of faculty sponsorship and grouping and networking:

*AIQ, TIQ, FGIQ, 4, 4, 5: Is there teacher sponsorship or mentoring of African American students? Do you believe that sponsorship makes a difference?*

All members of the learning community agreed that sponsorship truly makes a difference; however, they collectively stated that there was not a school-wide initiative that was created to ensure that students were connected to staff members. Many teachers commented to the need of a program where students felt sponsored by staff members.

During the interview process, a teacher stated that,

It's important to gain a relationship with the student. I believe in having a relationship with students. The first day of school a girl walked into my class and said finally a black teacher, and I think that at the middle school level in our district there are not a lot of African-American teachers, so when students get a black teacher they are excited to be in that class.

The findings supported a need for a program that was focused and intentional in a creating relationship between faculty and students. Due to the demographics at Jackson Addition Middle School, African American children are a small minority group;

therefore, it is vital to look at strategies to get the students infused into the school culture. The district has implemented a mentoring program that was noted as making a difference with a small percentage of African American males, but the faculty sponsorship efforts have not become a part of the culture of Jackson Addition Middle School.

### **Student Leadership Grouping and Networking**

The research investigated a variety of aspects that revolved around the development of student grouping and networking opportunities for students and the determination if the grouping was effective. Collaborative grouping can directly be connected to the theory of social capital. The theory rests on the premise that there is a variety of inherent capital in the development and maintenance of networking and relationships. The creation of social grouping and networking is a valuable element of success that is essential for individuals within organizations. Specified questions were provided to all participants in the study to look at elements of student grouping and social capital that exist at Jackson Addition Middle School.

*AIQ, TIQ, PIQ, FGIQ: Do African American students have access to networking opportunities or grouping activities inside the classroom? What activities or organizations have you observed to be effective with African American students?*

Student grouping is an underlying principle at Jackson Addition Middle School, which is facilitated in and out of the classroom. All research participants commented to the significant changes that grouping and networking activities has made on African American students. The principal commented by stating that,

We have worked real hard to build a student council that is representative of our student population. So they can speak to the needs of the student population. We have 16 clubs and organizations through ACE after school program, from Chess to Mural Painting. On campus, we started WAMM nation, and WAMM nation is

designed to address the hidden curriculum to build up a sense of pride that the students have in the campus and the district as a whole so that they have a reason to come to school rather than just their education. We want them to buy in and support the spirit of it all.

The after-school program at Jackson Addition Middle School provides several opportunities for students to be involved in their school community. Students participate in Student Council, National Junior Honors Society, Chess, Art, Drum line, Culinary Arts, Mariachi, and a variety of other organizations that provide outlets for students to network and explore opportunities to learn. The school also involves the students in local and state competitions in various organizations and clubs in an effort to expose them to a variety of possibilities for future endeavors. All children have a general interest in the after-school program and their parents also appreciate the exposure that the program provides for their children.

Grouping and networking inside the classroom has also been an influential process that has made recognizable changes in the increase of scores as well as the perspective of the students involved. The Project Based Learning Program has evolved into a culture of students that communicate in the classroom on a daily basis in an educational dialogue that is natural and very descriptive. The students at Jackson Addition Middle School understand the premises of research and dialogue and are able to work together as a group to solve as well as resolve problems. During the process, the teacher is the facilitator or coach that assists students during their research of the guiding questions as well as direct student input to ensure that all students are expected to be successful. The teachers at Jackson Addition Middle School commented that they believe that the student grouping and networking has been beneficial to African

American students as well. They commented that the combination of the student grouping and tutorials have been instrumental to the increase of “social stock” for African American students at Jackson Addition Middle School.

### **Summary**

The research findings represent a high level of grouping and networking as well as social capital at Jackson Addition Middle School. The entire organization has incorporated the grouping process within the classroom through the facilitation of Project Based Learning as well as through the after-school program with the creation of a number of student-based organizations. The findings specifically in all interviews communicated substantial evidence that grouping and networking has been successful at the school. All stakeholders are positive about the results and it has become a part of the school-wide culture. In regards to faculty sponsorship, however, the institution of a comprehensive program that encourages the connection between students and teachers was not apparent during the interview process. No one disagreed to the importance of faculty sponsorship and felt that it was beneficial to students’ aptitude; however, there were no substantial school-wide efforts that focused on sponsorship. The school organization was primarily comprised of a place where children were connected to networking and understood the expectations that were associated with the grouping process.

### **Belief Systems**

Perceptions are a reality to many people; their personal truths reflect their behavior as well as the manner in which they view their profession. Their perceptions are directly related to the cultural capital that is perpetuated their behavior and actions

(Bourdieu, 1986). Each interview questionnaire was created to analyze organizational, instructional, faculty sponsorship and grouping characteristics; however, it is also important to look at belief systems because these constructs are the foundation of cultural capital (Bourdieu, 1986). All instruments that were created examined the participant's beliefs regarding the education of African American students, particularly, as it related to student aptitude and the growing achievement gap. Administrators, teachers, parents, and the departmental focus groups were asked the following question regarding African American mathematics:

*AIQ, PIQ, TIQ, FGIQ: What is your belief of the current academic state of success of African American students in mathematics? What do you believe needs to change to encourage African American students to be academically successful in mathematics?*

The principal believed that many deficits with African American students rest in the community, particularly at home. He stated that,

It is historical, a lack of support at home, when they go home asking questions in that field, it is likely that they will not have someone that can work with them in that area. How we got there? I would have to relate it to the majority of experiences. The African-American culture that we serve here tends to be largely low socioeconomic so the worldly experiences that they have do not connect with the instruction that they get here at the school.

A teacher agreed by stating,

I feel like they struggle, the culture struggles because there is no value in education and I feel like the parents have difficulty in math themselves, so they pass the fear of math to their children, and they are unable to help their children at home at night if their children need help”.

As a school community, there was a belief system that students that were considered at risk were at a disadvantage than their more affluent peers. A parent commented by stating,

Parents don't have time anymore nowadays it takes a two-family incomes to support a family so parents don't have that time to work with the children. Sometimes, parents honestly don't care, they want to live their life, they feel that they are 12 years old and they can take care of themselves. Many parents don't care and do not want to spend time with their children.

All research participants agreed that the solution to the academic success of African American student's in mathematics lies in the motivation of students within the classroom as well as the facilitation of structures that connect students to the school environment. Additionally, parents expressed the need for the facilitation of high expectations to motivate students to work harder to be successful. A parent stated,

I think one reason is basically just fear; fear of trying something that they believe is hard. This fear, many times is what students get from home. Specifically, they believe that math is hard to understand. Secondly, not having that push to sit down and put in the time that needs to be put in mathematics. You have some subjects that you have put in 10 minutes and you have some subjects that you have put in 20 minutes; however, for math you have to put in at least 30 minutes to an hour to be able to understand, and I believe that a lot of people are not willing to put the time that it takes to be successful. They don't put the time in because they have other subjects.

When questioned about their own experiences in mathematics, fifty percent of the parents contended that they struggled in mathematics while half of parents that were interviewed stated that they were successful. One parent stated that faculty sponsorship was a determining factor in her success,

I liked math, I enjoyed math, and I personally need challenges so I don't get bored. I think math always provided challenges for me. Even if one part of the problem was easy for me, there were always more steps that needed to be taken that was challenging. Me being an athlete, my track coach, and my basketball coach were math teachers. So I also had people outside of home that was pushing me to be successful, and stay on top of math. They pushed me, even though I didn't want to take that trigonometry class, they pushed me. You have to have a cheerleader that pushes you—a friend, a teacher, a coach, a mentor, everyone needs somebody to give them that extra boost.

In conclusion, all participants agreed that socioeconomic and emotional challenges that exist in the community have had a significant impact on the academic achievement of African American students in mathematics. The findings suggest that many participants believed that a relationship gap exists between parents and teachers, primarily due to the inability of parents to assist their children at home in mathematics. The findings suggest a definite lack of cultural capital. There were also apparent structures that must be created at Jackson Addition Middle School that bridge the gap between the community and the school.

### **Conclusion**

The findings conclude that Jackson Addition Middle School is an organization that has experienced a variety of transitions in the past five years due to the turnover of leadership. The principal is in the process of assessing the school-wide organizational structure to look at specific strategies that encourage children to be successful in all endeavors in the school. The school is composed of a group of teachers that have continued to work at the school since it was built in 2006. Many of the educators at Jackson Addition Middle School have created positive structures that revolve around grouping and networking processes. The culture and climate in the school perpetuates grouping processes in the classroom as well as the after-school clubs and organizations that provide to further student participation and learning. The interview process confirmed that collaborative grouping and the acquisition of social capital was instrumental to the academic success of African American students in mathematics at Jackson Addition Middle School. The increase in achievement in a 5-year span was a

progression of 26 percentage points. Teachers attributed the continual growth to collaborative grouping as well as the before- and after-school tutoring programs offered to students.

In regards to faculty sponsorship, there was not substantial evidence of a number of activities at the school. All participants commented the need for and value of sponsorship in the educational process; however, they had not established a variety of opportunities for students at the school to connect with staff members. Jackson Addition Middle School is one of many schools in the State of Texas that is considered marginal. The findings support that there are a variety of organizational, instructional, and faculty sponsorship-based structures that need to be established and restructured to increase engagement of African American students to the educational process. Teachers have provided information that substantiates a disconnect between the school and the community. It is important for the personnel at Jackson Addition Middle School to create avenues of positive communication that informs parents of strategies that can be incorporated at home to assist their children to raise levels of cultural capital in the future. Jackson Addition Middle School represents an example of a marginal performing school and the elements that are indicative to an organization that struggles to become high performing.

### **General Conclusion to the Chapter**

In conclusion, the research findings provided a variety of positive constructs at both schools that perpetuate success. Andrews Middle School and Jackson Addition Middle School have observed varying levels of progress in the area of mathematics

during the 2007-2010 school years. Administrators, teachers, focus groups, and parents were interviewed to provide a variety of perspectives regarding their insight into the progress of African American students at Andrews Middle School and Jackson Addition Middle School. There were a variety of elements that were common within both organizations, as well as components that differentiated the performance of students as per state assessment standards. These indicators are the characteristics that divide “Exemplary” and “Marginal” performance at the middle school level.

Therefore, it is vital, to look at both Andrews Middle School and Jackson Addition Middle School’s positive organizational, instructional, faculty sponsorship, grouping and belief systems to identifying attributes that can lead to “Exemplary” performance. Chapter V will discuss the positive characteristics that were highlighted within each school’s organization to garner educational attributes that are indicative of “Exemplary” organizations. The research will look for organizational and instructional factors that are perceived by administrators, teachers, and parents as characteristics for academic success for African American students in mathematics. The chapter will also present a variety of recommendations that can be used for future research.

## **CHAPTER V: DISCUSSION, IMPLICATIONS, AND RECOMMENDATIONS**

The purpose of this research is to analyze and investigate educational structures that exist in a middle school setting that effectively empowers African American students to succeed academically. There is overwhelming research that specifically addresses the achievement gap between African American students and their counterparts, as well as the evidence of a variety of social factors that inhibit African American student growth (Gutstein & Peterson, 2005). The data collected provides evidence of school and community challenges that persuade African Americans to disconnect and isolate themselves. A number of researchers have analyzed the characteristics that are prevalent, and the relationships that exist in the constant challenges faced by African American students in the school setting (Bryk, 2010). However, there has been a lack of research investigating positive educational strategies that ensure that African Americans can be successful in the classroom. The premise of the research specifically addresses the creation and facilitation of a comprehensive model that engages African American students to be successful in mathematics.

Two middle schools in Texas that were marginal as well as high performing were investigated to extrapolate organizational and instructional characteristics that empower African American students to be successful. A variety of surveys, interviews, and Texas Education Agency data were analyzed to determine why specific middle schools in Texas are successful in realizing African American student achievement in mathematics. The research investigated specific strategies that were facilitated by the school administration, departmental teams, and classroom teachers that empower African American students to

succeed. Furthermore, the study highlighted effective practices and analyzed trends that could be used by other schools in the future. The schools that were selected provided comparison data that enabled an understanding of organizational and instructional characteristics related to the academic performance of African American students in mathematics. The study also analyzed both schools' data and compared them with other Texas programs. This qualitative research addressed the following research question: What organizational and instructional characteristics foster information exchanges that are identified by Texas middle school administrators, teachers, and parents that are perceived to improve urban African American mathematics achievement?

The hypothesis of this study maintains that African American students that have effective organizational and instructional systems that center on collaborative “social” grouping as well as a committed faculty that sponsor their efforts in the development of focused opportunities of exposure, perform at a higher rate than their counterparts. Specifically, schools that have committed educators who sponsor African American students as well as group them into social, leadership-based activities perform at a higher rate. One school that was researched is considered one of the highest rated predominantly African American middle schools in the State of Texas and has exhibited increasing positive trends in academic achievement annually during the past three years. Another middle school that was researched has marginally performed, particularly in mathematics.

Interview questionnaires and surveys were initiated at each campus to collect data regarding the various organizational and instructional factors that existed at the campuses. Interview questions were also used to analyze prevalent elements of faculty sponsorship and student leadership grouping and networking. The research interview questions and surveys that were used were categorized into factors for clarity and continuity. Administrators, math departments, teachers and parents were questioned to examine organizational, instructional, faculty sponsorship and leadership grouping factors that were determinants for African American student success. The departmental focus group was surveyed to uncover underlying perceptions and strategies that teachers felt were necessary for African American students in the classrooms. The questionnaires were appropriately entitled AIQ, TIQ, FGIQ, PIQ and were analyzed for both schools.

The research substantiated a number of positive identifying characteristics for both Andrews Middle School and Jackson Addition Middle School. All research participants shared positive elements that contributed to the achievement of students at the school, as well as uncovered areas of growth that are needed for success. Chapter V includes an examination and summary of an analysis of both schools to investigate the components that are proven to be effective in the “Exemplary” academic achievement of African American students. The study includes a discussion of a comprehensive model that incorporates all positive elements that were researched. It is important to create a comprehensive model that bridges the gap between marginal and high performance, and builds a structure for exemplary academic achievement. The Progression of Success Model focuses on how the positive structures can be connected to produce exemplary

performance. Finally, the study includes an examination of the implications of the research, as well as the limitations of the study. In conclusion, the research leads to recommendations for future study to develop a model that addresses African American student achievement in mathematics.

### **Summary of Findings**

There is substantial evidence in relation to both Andrews Middle School and Jackson Addition Middle School that confirms a variety of positive organizational, instructional, faculty sponsorship, and grouping indicators that are attributed to the increased achievement of African American students. However, in order to adequately create a comprehensive model, it is important to look specifically at the research question, and investigate the findings for patterns existing in each organization that positively affect African American students. The overarching aforementioned research question gave the aim of the investigation and looked at two schools for further analysis. The research conducted at Andrews Middle School and Jackson Addition Middle School examined and confirmed a variety of positive organizational and instructional characteristics that foster information exchanges that were perceived by administrators, teachers, parents, and focus groups to improve African American student success in mathematics. The findings of the research were categorized in a variety of systems and structures that provided clarity for the information received as well as combined aspects of the research question and the hypothesis. These factors were used as a foundational construct to summarize the findings. The organizational, instructional, faculty sponsorship, grouping, and networking, as well as the teacher belief systems are critical to the creation of a

comprehensive model that investigates attributes for future exemplary performance of African American students in mathematics.

### **Organizational Structures**

The findings at both schools substantiate that high-performing schools are organizations led by experienced leaders who motivate and empower all members of the school community to be successful. These tenured principals understand all the structural elements that lead to success, and are able to prioritize the initiatives that truly craft African American student learning. The administrators are engaged in every aspect of the school's operations and have an intuitive pulse on the school community needs. The findings provide various instances in which a seasoned administrator can create a positive nurturing environment that communicates high expectations and improve family processes. Effective administrators are individuals that understand the value of effective teachers within the learning process and create an environment that is supportive and holds all educators accountable for student learning. An experienced leader that possesses a skill set that motivates, empowers, and models expectations is critical to the establishment of positive organizational structures at high-performing schools. The findings affirm that teachers are also instrumental in the facilitation of organizational structures that motivate African American students to be successful. Teachers are the catalyst for learning and their ability to deliver instruction is the premise of the learning process. Successful, experienced teachers that choose to stay at challenging school organizations lead their students to success. The findings confirm the effect that

experienced teachers can have on African American students in mathematics at the middle school level.

Lastly, three additional organizational structures that contribute to the success of high-performing schools are the processes of discipline, consistency, and family concept. The research affirms that African American students perform well in a very structured environment that is consistent across grade levels and individualized for the needs of the students. The high-performing middle school within the study was staffed with a group of educators that taught similar strategies in a very structured environment. At their grade levels, all teachers taught similar school-wide strategies to simplify processes and support continuity. The consistency of best practices molded a culture and climate of high expectation at each grade level. As students matriculated throughout the school, they were increasingly connected to the strategies and vision of the school. When the instruction became predictable, teachers focused students' attention on the mastery of objectives as well as the effective facilitation of school-wide strategies. This "educational oasis" represented a structured, consistent environment centered on a family of learners that appreciated and supported one another. The administrators and teachers at high-performing middle school created a learning environment that was family oriented and fostered collegiality. In conclusion, the findings confirm that organizational structures that cultivate discipline, structure, and consistency coupled with an experienced, motivated administrator and staff members is the recipe for success for African American students.

## **Instructional Structures**

The study findings substantiate that the institution of school-wide strategies is crucial to the increased progression of African American student performance in mathematics. The high-performing school focused on specified strategies that were enforced by the teaching staff daily. Students' familiarity and consistency with the learning strategies ultimately taught thinking processes that were needed in state assessments. Students in each class were taught to think through a series of steps that focused on the analysis of the mathematical problem. Students were encouraged to highlight, summarize the problem in their own words through a critical writing process, and restate the components of the problem to the teacher prior to working through the solution. Along with the school-wide strategies there was an emphasis on dialogue as a guiding tool to assist African American students throughout the instructional process. Teachers focused on the delivery of the material and concentrated their efforts to communicate with each student during the lesson. The teachers' increased attention on dialogue perpetuated a sense of family and connection between the teacher and the students in the classroom. The teacher's ability to make relevant examples and solicit responses from students was a determining factor in the encouragement of African American students' engagement in the learning process. Lastly, the findings substantiate the infusion of grouping and the value in which students of color benefit from the collaborative process.

## **Grouping and Networking**

The research confirmed the importance of grouping as a viable characteristic that is associated with the increase of African American student scores in mathematics. The social capital that students receive at the school is critical to the success of African American students. During the study, teachers commented on the use of Project Based Learning and the integration of African Americans in grouping processes. All students within the classroom were provided a guiding question at the beginning of the lesson and were expected to work in groups to research avenues to solve the problem. African American students were able to express their knowledge and work within a comfortable process that was tailored for their success.

The school that facilitated the grouping and networking processes increased 23 percentage points in a 5-year period, despite three changes in leadership at the school. The findings substantiate that the grouping process was an effective determinant throughout a variety of organizational transitions within the school environment. The creation of organizations and clubs was also vital to the improvement of African American student's performance in mathematics. The study confirms that the integration of a variety of opportunities in which African American students network and collaborate is instrumental to development of high levels of cultural capital. All administrators, teachers, and parents agreed that the participation of students within the leadership grouping and networking process improved students' confidence and work ethic, which led to substantial improvement in their understanding of mathematics. The middle school

within the study that incorporated multiple organizations and clubs was perceived by all stakeholders to benefit from the development of the collaborative processes.

### **Faculty Sponsorship**

The findings were that evidence of a formal mentoring or sponsorship program did not exist in either school; however, in one middle school, there was a wealth of informal sponsorship that resulted in substantially changing the learning environment. Teachers within the school environment had spent over 20 years at the school as math teachers, during which time they had the opportunity to teach parents, siblings, and relatives of many of the students that matriculated throughout the same school over many years. The teachers developed a deep sense of connection with the students and their families within the community. They felt responsible for the students' efforts and through daily dialogue expressed a profound proclivity to their students. The teachers mentioned the word "love" on many occasions and were emotional through the interview process specifically when speaking about the challenges of the outside community and how they affected their students. The teachers were important and played a significant role in encouraging their students to be successful. They truly believed in the potential of their students and did not allow for mediocrity. Teachers invested a high level of cultural capital by investing their time and effort in their students, their families, and in the community. They truly believed that their students could be successful and their perseverance became a cultural component within the school environment.

## **Belief Systems**

In both middle schools, the findings concluded that the students within the school environment lived in very challenging environments. Many children in the school community lived with grandparents, often due to the incarceration of their parents. After school, supervision at home was not consistent and many students observed substance abuse from parents in their homes. All administrators, teachers, and parents stated that their students lived in an intense state of poverty, and many parents were unable to assist their children with mathematics at home. There were constant variables of poverty, socio-emotional challenges, and counseling needs; however, the underlying factor that perpetuated success with one school was the prevalent belief that the students would be successful regardless of their difficult environment. Teachers at the school provided whatever was needed to ensure that their students were successful and encouraged parents to bring students to tutorials to encourage their academic progress. This “no nonsense” attitude empowered students to be successful and became a tenet of the culture and climate within the entire learning community. The teachers’ ability to transfer cultural capital to their students through the learning process balanced the variables that existed in the community.

In conclusion, the findings confirmed the facilitation of positive organizational, instructional, grouping, and faculty sponsorship processes that are extremely important to the vitality of African American students in mathematics. Students that attend schools with experienced administrative and teaching staff that focus on school-wide strategies revolving around structure, consistency, grouping, and faculty sponsorship are more

successful than their peers in other educational environments. Independent School Districts that focus on the implementation of these specified constructs incrementally realize a progression of African American scores in mathematics and other content areas. A compilation of the findings in both schools show that their organizations have a variety of successful and unsuccessful characteristics with the entire facilitation of school processes. The schools' ability to prioritize their vision and mission in the incorporation of a number of these factors determine their achievement aptitude. In short, schools that are able to have experienced leadership and personnel that infuse positive organizational and instructional structures coupled with grouping and faculty sponsorship will become exemplary organizations. Schools that possess a limited number of these tenets will continue to have varying levels of marginality.

The findings of the research mirrors the work of Anthony S Bryk (2010) and is a topic of discussion in analyzing how these structures are coupled together to perpetuate success. In his book, *Organizing Schools for Improvement: Lessons from Chicago*, Bryk research 100 successful elementary schools and 100 ineffective elementary schools over a seven-year period of time and determined that there were a variety of characteristics that were indicative of success. Bryk (2010) affirmed that five essential supports were necessary to the success of at risk students in Chicago. He attributed that: school leadership, professional capacity, parent-community participation, student centered learning climate and instructional guidance were components for success. Bryk's (2010) work is highly regarded and confirms many noted findings within the research. Effective schools are comprised of a number of positive organizational and instructional strategies

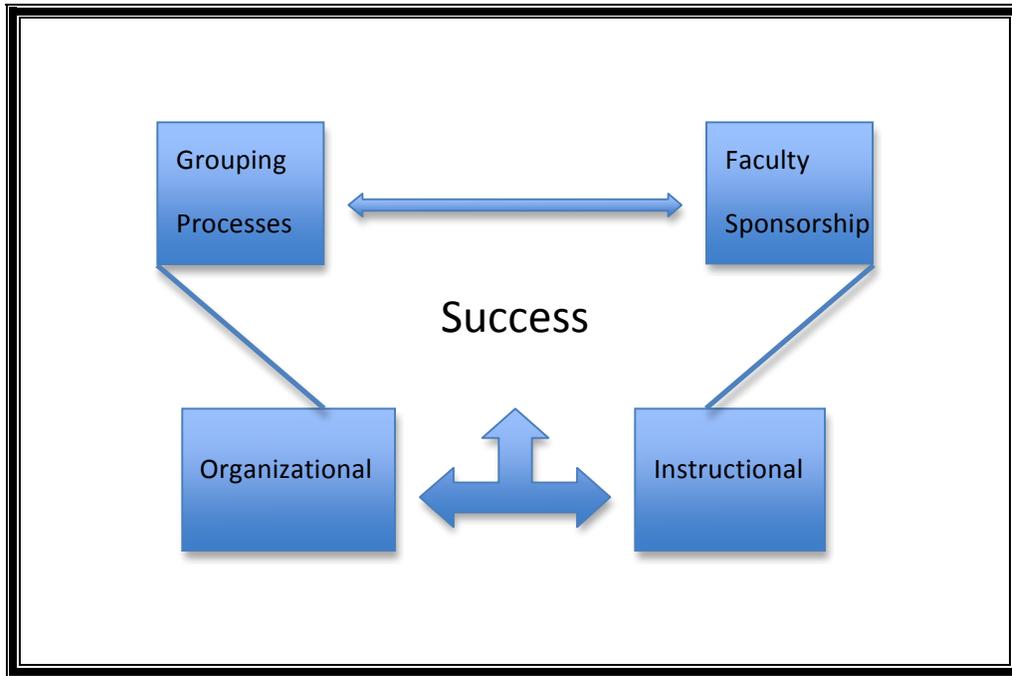
that encourage success. The progression of these strategies is imperative, however, and is in need of clarity in the determination of factors that are associated with the success of students at the middle school level. It is important to discuss how these factors are brought together to determine a successful recipe and create a model that shows how each factor is connected to student success.

### **Discussion**

The premise of the study focused on the development of organizational and instructional factors that perpetuate success for African American students at the middle school. The investigation centered on the integration of faculty sponsorship as well as grouping and networking process and specifically examined how all the factors attributed to the success of students. Through a series of interviews and questionnaires, a variety of findings confirmed the existence of specific organizational and instructional structures that were instrumental to the success of African American students. In the investigation of vital grouping processes, the findings were that informal faculty sponsorship was a causal factor in the academic success of African American students at the middle school. The question that arises and is a topic of discussion lies in the method in which all the specified factors perpetuate success for African American students. In short, what factors are associated with marginality, as well as with exemplary practices? It is important to analyze the factors and determine how their association affects the performance of students.

Based on the findings, the accumulation of positive factors within an organization determines the performance level of African American students. Figure 1 provides an

example of the progression of success that occurs at a campus in relation to African American students.



*Figure 1.* Progression of success model.

All characteristics presented within the model can exist independently at specific schools and not substantially transform the academic performance of students. There are a variety of schools that have positive instructional attributes; however, in the absence of organizational structures, faculty sponsorship and grouping processes, their results can be lackluster. Schools that have two factors, such as positive organizational as well as instructional structures, have a propensity to be marginal. The combination of two factors on the progression of success model can lead to marginal success due to the varying elements that must exist to foster exemplary achievement. Within many

organizations that have substantive organizational and instructional indicators, there are common components. These specific organizations have leaders that have created strong organizational constructs, as well as emphasized instruction throughout their learning community.

Teachers within these organizations focus specifically on best practices that have been proved to be effective with all students. However, in the absence of grouping processes and faculty sponsorship, the organization will be unable to reach high performing and exemplary status. The Progression of Success figure affirms the notion that with the acquisition of each additional positive factor, the performance of the school continually increases. Schools that are able to effectively implement organizational, instructional, grouping and faculty sponsorship have the propensity to become exemplary organizations. Schools unable to acquire these specified variables have a propensity to be on a continuum of progression that begins with low achievement and ends with exemplary performance. The findings suggest that the incorporation of additional factors contribute to the progression of student performance within the school environment.

### **Implications of the Study**

The findings suggest that successful organizations start with quality of leadership within the school. In his book *Leadership in Organizations* Yukl (2006) analyzes the concept of leadership and the characteristics of effective school administrators. Yukl provides a leadership framework that revolves around the characteristics of effective leadership. From the literature review, researchers suggest that a leader must have a vision that is collaborative and includes all stakeholders. Researchers like Yukl (2006)

affirmed the value of an administrator that created a positive, effective school-wide vision that empowered teachers as well as students to accomplish specified outcomes within the school community. The development of positive school-wide organizational structures that emphasize collaboration and the concept of “family,” are also critical to the success of African American students. In their study, “Successful, Texas School Wide Programs” (1997), researchers at Charles A Dana Center examined 26 schools throughout the State of Texas and maintained that effective administrators create a sense of family in which all stakeholders feel connected. Leaders create mottos or axioms such as “We’re family here,” or “These are all my children,” to encourage dedication to the students and the school community. That study maintained that school leaders communicated to all members of the school community the importance of participation in the campus processes. The theme “Everyone is Part of the Solution” is deemed necessary for all students to be successful in school (Charles A Dana Center, 1997).

The research findings served to substantiate the existence of a school-wide culture that emphasized family and love. The study represented an apparent perpetuation of emotion between administrators, teachers, and students. The leader created an environment of care that was fostered throughout the school community. The implications of this study specifically address the recruitment and retention of positive and effective leadership within organizations that imbue high levels of cultural capital to all members of the school community. It is critical that Independent School Districts recruit, train, and retain effective personnel that have the proclivity to create learning environments that motivate African American students to be successful. It is also

important to provide support and autonomy to administrators proven to be successful in building a learning community that perpetuates success for African American students. The implications to effective leadership are essential in the creation of organizations that are traditionally high performing.

The process of teaching and learning is a complex, multi-step process that must be mastered by experienced personnel. Hutchinson and Padgett (2007) defined good teachers as “individuals that master the art of providing information to students’ memory in a practical method” (p. 22). Hutchinson and Padgett specifically studied teachers who had a deep knowledge of the content and implemented processes to effectively educate their students. A wealth of knowledge of the curriculum was a precursor in the development of successful students. Teachers who were more experienced in the subject matter had higher achievement scores (Ware, 2006). The quality of instruction begins with the command of the subject matter, particularly at the secondary level (Zevenbergen, 2000). The research findings confirmed that experienced teachers are the catalyst for improvement in regards to African American students. In addition, experience and collaboration foster high performance among African American students. In the researched school, the entire math department’s experience levels averaged 21 years and they planned weekly for approximately 14 years collectively. The implications of this study rest in the recruitment, training, and retention of staff that are effective in the delivery of instruction to African American students. It is important for districts to investigate strategies and programs to recruit and retain quality teachers that care for

students of color. Retention is an instrumental factor in the creation of an organizational culture that fosters learning.

In regards to instruction, it is important to create staff development that emphasizes the establishment and facilitation of grouping processes within the classroom as well as the entire school-wide community. The facilitation of leadership grouping is a key element in encouraging African American students to be successful. Studies show that administrators that create enrichment programs and extra-curricular opportunities that revolve around students' interests and talents, motivate student participation in the organizational processes that advance student learning (Charles A. Dana Center, 2002). The research findings concur in the assertion that grouping positively results in the acquisition of social capital and learning for African American students. Facilitation of Project Based Learning ideals within classroom processes and the implementation of the program positively affected students within the school. The implications of this study address the need for extensive training at the middle school level in instructional grouping. The research substantiates that African American students work more efficiently in collaborative groups with defined roles. It is important to create grouping processes within the classroom as well as clubs and organizations that promote leadership and foster social capital.

The study affirmed the findings of Schweinle (2006) on how students who are motivated take control over their own learning and learn how to self-manage their cognitive constructs. Also supported was the finding on the importance of student grouping in the educational process. When students collectively generate ideas and plans

as a group, it fosters collegiality and teamwork. In conclusion, the research helped to identify underlying characteristics that affect the matriculation of African American students within middle school mathematics. Great schools need great leaders and great teachers. School organizations must prioritize efforts into the retention of experienced personnel that motivate children of color to be successful within the classroom. Recruitment programs should be developed to recruit and train the best administrators and teachers for the school organization. Retention initiatives that are outcome based must be created to address the successful evolution of a progressive organization that focuses specifically on student learning and community building. Teachers must be encouraged to participate in the environment and feel that they belong to the school organization. Lastly, school organizations should promote the facilitation of grouping processes within the middle school environment. Grouping processes within the classroom as well as the school organization were proved to be effective and build social capital for African American students. The work of Anthony Bryk (2010) confirm each of the contentions of the research and show similar characteristics that are apparent at the elementary level. The implications of this research can prove valuable to the improvement of African American students' scores in mathematics across grade levels, as well as in other content areas.

## **Limitations of the Study**

There are a few limitations within the study that require analysis when investigating effective strategies for African American students at the middle school level. One limitation of the study revolves around the exclusivity of African American students within a predominantly African American school. Due to the changing demographics in the State of Texas, there are only a few cases of predominantly African American student populations at the secondary level. Many at-risk middle schools within the state have multiple populations that create an extremely diverse demographic. One limitation of the study resides in finding the location of an at-risk middle school in the State of Texas with a predominantly African American student body. The AEIS Comparative Data (2010) was used to indicate a list of middle schools that meet the criteria and Andrews Middle School is considered one of the most successful predominantly African American schools in the State of Texas. Due to the research and findings within the school environment, the lack of a viable comparison group perpetuates a variety of limitations within the study in relation to the perception and practices of administrators, teachers, and parents regarding African American student achievement.

The second limitation of the study includes the mathematical performance of the students within the schools that were predominantly African American. Due to the small number of such schools, there is a smaller comparison of schools that have attained comprehensive increases in student achievement particularly in mathematics. The absence of a larger comparison group is a limitation to the study due to the specificity of

school characteristics and how they influence the outcome of student achievement. In short, the Texas Education Agency (2010) published AEIS reports that indicated two successful predominantly African American middle schools in the state. Therefore, a limitation exists due to the lack of examples within the State of Texas within the performance of mathematics. Despite the hindrance of a larger sample size, it still proved important, however, to use another school that had a diverse population of students to compare and examine best practices that were prevalent at both organizations. Despite the school's overall performance, the research targeted indicators that encouraged African American students to succeed in mathematics.

Consequent limitations centered on the time frame that was used as a focal point throughout the study as well as the data that was analyzed to show positive trends. The 2010-2011 school year was used as a reference as well as the Texas Assessment of Knowledge and Skills data. Educator mobility trends within the state showed the possibility of teacher and administrator movement to other positions within or outside the district (TEA, 2010). Student mobility patterns also suggest that the school's demographics could have changed slightly within the past year. Another factor or limitation that requires attention revolves around the data that was used throughout the study. The Texas Assessment of Knowledge and Skills assessment data was exclusively used and compared within this study. End of Course examinations or advanced placement scores were used in the data disaggregate, which could infer a limitation due to the analysis of only one sample. Moreover, the induction of the STAAR test during the

2011-2012 school year provides variables that can lead to limitations within the research findings.

Lastly, the study focuses on middle school students and does not consider African American students who are at the elementary or high school within the feeder pattern to show similar characteristics at all levels in regards to mathematics. At-risk elementary and secondary schools share common indicators such as SES, discipline percentages, and performance issues; therefore, patterns could exist that communicate a systematic problem in the facilitation of effective strategies that encourage African American students to be successful in mathematics. However, middle school is the time in which students socially connect to groups and begin to plan their future endeavors. This study's emphasis on the creation of organizational and instructional structures that foster effective collaborative networks and faculty sponsorship is crucial at the middle school level due to the socialization of students.

### **Recommendations for Future Research**

The overall purpose of the research was an investigation of factors at the middle school level that were associated with the increased achievement of African American students. The findings suggested that African American students need specified organizational and instructional factors coupled with grouping and faculty sponsorship to achieve high levels in middle school. The outcomes were determined by a variety of interviews and questionnaires that targeted varying characteristics of the learning environment. The perceptions of administrators, teachers, parents, and focus groups were examined to determine specific indicators within each determinant. The findings

substantiated the claim that African American students perform better through the progression of success model that evaluated school organizations on a continuum of attributes that could be attained by the organization.

The number of successful organizational, instructional, grouping and faculty sponsorship characteristics that are obtained by an organization increases the school community's propensity to be more successful. Although specified characteristics at the middle school were evaluated, additional research must continue to be done at the secondary level to determine if similar traits are determinants for students' success at different levels. Specified studies on each component should be initiated to analyze the manner in which organizational, instructional, faculty sponsorship and grouping dynamics impact an organization. Based on the validity of the research, separate dissertations can be written to investigate how each characteristic influences the school setting. Future research is also needed at the high school to ascertain if African American students need identical attributes to be successful in mathematics. Additional research can also be done at the elementary level to identify specific indicators that are connected to the increased academic achievement of African American students in mathematics. It is important to create a K-12 model that examines constructs that are connected to empower African American students in mathematics. It is also crucial to create a K-12 developmental model that highlights important organizational and instructional attributes as well as grouping and sponsorship indicators that are needed at the different levels of schooling. In conclusion, the research findings included a variety of factors at the middle school that attribute to the success of African American students in mathematics.

However, future research on the creation of a K-12 research framework is needed to build a level of capacity concerning the transformation needed to close the achievement gap in mathematics

### **Conclusions**

The purpose of this study was to examine middle school practices that had traditionally been successful in encouraging African American students to achieve higher scores in mathematics and investigate existing patterns specifically for strategies that schools could implement to motivate students. It is extremely important that all students have an access to an appropriate successful education, and that educational organizations build systematic infrastructures to encourage students to realize success in all areas, specifically in the area of mathematics. By using qualitative data that was a collection of administrators, teachers, parents' perceptions, attitudes, beliefs, and practices, this study can change current paradigms regarding African American student achievement.

Chapter I introduced the purpose of the study and provided the research question that specifically examined organizational and instructional factors perceived by administrators, teachers, and parents to foster grouping and faculty sponsorship. The chapter provided an overview for the entire study, and set the tone for the identification of indicators that are attributed to African American success in mathematics.

Chapter II included a review of extensive literature that not only focused on the problem that existed in the facilitation of effective strategies that encourage African American students to be successful, but also on avenues that had been initiated to build a

positive scaffold for success. The need was identified for additional research that not only acknowledged the deficits in mathematics achievement but also investigated strategies in all areas that perpetuated and increased academic performance. The literature review also provided a host of information on the investigation of factors that fostered systems for success at the school level. Organizational factors such as quality of leadership, positive school community structures, instructional student leadership, and extracurricular activities were effectively analyzed to bring to light examples that organizations have incorporated to motivate African American students. Instructional factors such as teacher quality, student culture, and teacher educational belief systems were analyzed to reveal components that led to the successful performance of African American students in mathematics.

The literature review concluded with the factors that distinguished and differentiated high-performing and marginal-performing schools, as well as those that incorporated the theoretical framework of the social and cultural capital theory in an effort to investigate indicators that determine success within the variance of schools. Lastly, the literature review narrowed the focus of the study by using the Treisman model as well as by introducing the two strands of grouping and faculty sponsorship. Each section began with the past literature on the topic, and searched for information regarding strategies that promoted success. The purpose of the literature review was to acknowledge present deficits and focus on successful avenues that have been created that build a culture of excellence for African American students in mathematics.

Chapter III provided a detailed account of each of the components that comprised the methodology of the study. Structural elements such as the problem statement, research questions, need for qualitative research, study site, participants, sources of data and collection, analysis of the data, data fidelity and confidentiality, and chapter summary were used to provide a scaffold of understanding of the manner in which the research would be facilitated and how the data would be collected, categorized, analyzed, and evaluated.

Chapter IV presented the findings through a variety of interviews and surveys that were initiated at each campus that garnered input concerning various organizational and instructional factors that existed at the campuses. Interview questions were used to analyze prevalent elements of faculty sponsorship, student leadership grouping, and networking. In an effort for clarity, the following research interview questions and surveys that were used were categorized into a number of factors. Administrators, math departments, teachers, and parents were questioned to examine organizational, instructional, faculty sponsorship, and leadership grouping factors that were determinants for African American student success. In addition, the departmental focus group was surveyed to uncover specific belief systems and structures that teachers felt were necessary for African American students in the classrooms. The findings and conclusions are provided on all elements of positive structures that influences substantial increases in achievement.

Chapter V summarized the findings of the research, discussed the progression of success model, and provided implications and recommendations for future research. The findings substantiated that high-performing schools are organizations that are led by experienced leaders who motivate and empower all members of the school community to be successful. The research also resulted in the conclusion that experienced teachers are instrumental in the development of African American student learning. The findings were that the incorporation of grouping and networking opportunities for students is critical to overall student achievement in the classroom, and that all stakeholders at both schools believed grouping to be beneficial to the success of students. Lastly, faculty sponsorship and belief systems were analyzed to address the motivational aspects of the school organization. The research affirmed that the ability of teachers to sponsor and connect with children was a contributing factor to increased achievement. The chapter ended by providing a variety of implications that must be addressed by school districts to build positive successful school communities, as well as recommendations for future research that can be used to create a K-12 model.

The primary hope of the researcher is that this study can be used to assist any organization in need of addressing the academic achievements of African American students. The growing achievement gap as well as the demand for more rigorous testing forecasts a future in which districts across the country will look for positive solutions to a prevalent problem in the state and local communities in the United States. African American children can be successful; they must be provided with certain conditions that promote success. The findings suggest that they cannot be educated like all other

students in an “assembly line” process that is rigid and does not address their needs. African American students must be in an environment that is tailored to their strengths, identifies needs, and assists in their areas of growth. A statement that encapsulates the research is that “everything under the sun can grow with the right nurturing and attention,” it is time for local and state school systems to facilitate comprehensive strategies that specifically addresses African American student development.

## APPENDIX A: TEACHER CONSENT FORM

IRB APPROVED ON: 10/25/2012

STUDY NUMBER: 2012-04-0061

DO NOT USE AFTER: 10/24/2013

### Consent Form

#### A Study of African American Mathematics Achievement in High Performing and Marginal Performing Middle Schools in Texas.

Dear Participant,

I want you to be a part of a study that looks at African American students in mathematics. Since the Nation at Risk report there has been a lot of attention on the gap that leads to the lack of success from African American students. There are not a lot of examples of at risk schools that have been successful over a period of time for African American students in mathematics in the state of Texas. This study will look at both middle schools in Texas that helps African American students to be successful in mathematics. If you agree to be in this study, you will be asked to do the following things:

- You will be asked to finish a survey and be in an interview that asks for information about the school.
- The school will be asked to give data on African American students in the past five years.
- Groups will be brought together to talk about the great programs that help African American students in mathematics.

Your participation will be audio recorded.

The information that you give to the study is confidential. You may choose to not be in the study at anytime. If a question is uncomfortable to answer, please skip it when you need to do so. You will not be paid to be in this study or ask to pay anything to be in the study.

There are also no problems that we can see with this study due to the subject matter. If there is a problem, the part will be changed.

#### Contact Information

Researcher Name- Robert Peters, Email Address- RPeters2201@sbcglobal.net, Phone Number- 972-849-6466 Institutional Review Board by phone at (512) 471-8871 or email at orsc@uts.cc.utexas.edu.

IRB APPROVED ON: 10/25/2012

STUDY NUMBER: 2012-04-0061

DO NOT USE AFTER: 10/24/2013

Consent Form

**Consent Agreement**

If you agree to be in the study it will be voluntary. Money will not be given to be in the study and there are no risks that are connected to this study.

**Signature**

You have been given the information about this study. All policies have been given to give an overview of this study. Please feel free to ask any questions that you feel are needed before signing the consent form. By signing this information, you agree to be in this study

Printed Name \_\_\_\_\_ Signature \_\_\_\_\_

Date \_\_\_\_\_

## APPENDIX B: PARENT CONSENT FORM

IRB APPROVED ON: 10/25/2012

STUDY NUMBER: 2012-04-0061

DO NOT USE AFTER: 10/24/2013

### Parent Consent Form

#### A Study of African American Mathematics Achievement in High Performing and Marginal Performing Middle Schools in Texas.

Dear Participant,

I want you to be a part of a study that looks at African American students in mathematics. Since the Nation at Risk report there has been a lot of attention on the gap that leads to the lack of success from African American students. There are not a lot of examples of at risk schools that have been successful over a period of time for African American students in mathematics in the state of Texas. This study will look at both middle schools in Texas that helps African American students to be successful in mathematics. If you agree to be in this study, you will be asked to do the following things:

- You will be asked to finish a survey and be in an interview that asks for information about the school.
- The school will be asked to give data on African American students in the past five years.

Your participation will be audio recorded.

The information that you give to the study is confidential. You may choose to not be in the study at anytime. If a question is uncomfortable to answer, please skip it when you need to do so. You will not be paid to be in this study or ask to pay anything to be in the study.

There are also no problems that we can see with this study due to the subject matter. If there is a problem, the part will be changed.

#### **Contact Information**

Researcher Name- Robert Peters, Email Address- RPeters2201@sbcglobal.net, Phone Number- 972-849-6466

Institutional Review Board by phone at (512) 471-8871 or email at [orsc@uts.cc.utexas.edu](mailto:orsc@uts.cc.utexas.edu).

IRB APPROVED ON: 10/25/2012

STUDY NUMBER: 2012-04-0061

DO NOT USE AFTER: 10/24/2013

Parent Consent Form

**Consent Agreement**

If you agree to be in the study it will be voluntary. Money will not be given to be in the study and there are no risks that are connected to this study.

**Signature**

You have been given the information about this study. All policies have been given to give an overview of this study. Please feel free to ask any questions that you feel are needed before signing the consent form. By signing this information, you agree to be in this study

Printed Name \_\_\_\_\_ Signature \_\_\_\_\_

Date \_\_\_\_\_

## APPENDIX C: FOCUS GROUP CONSENT FORM

IRB APPROVED ON: 10/25/2012  
STUDY NUMBER: 2012-04-0061

DO NOT USE AFTER: 10/24/2013

### Consent for Participation in the Focus Group

#### A Study of African American Mathematics Achievement in High Performing and Marginal Performing Middle Schools in Texas.

Dear Research Participant,

I invite you to participate in a focus group that investigates the achievement of African American students primarily in mathematics. Since the Nation at Risk report there has been a social microscope on the growing achievement gap and factors that contribute to the increasing lack of improvement from African American students. There are no publicized examples of at risk schools that have traditionally and consistently been successful with African American students in mathematics in the state of Texas. The overall purpose of this study is to compare middle school practices that encourage African American students to be successful in mathematics. If you agree to participate in this focus group, there will be the following requirements:

- You will be asked to answer designated questions in a group setting and participate in dialogue that solicits information concerning African American student achievement at your school.
- The focus group will be provided specific information to ensure that all participants understand the norms of the session.
- The focus group's ultimate goal to investigate organizational and instructional structures that encourage African American students to be successful in mathematics.

The focus group will consist of middle school mathematics teachers within a department that have incorporated strategies that have effectively motivated African American students to be successful.

Your participation in the study will be audio recorded.

The information that the group submits to the study is confidential and voluntary. Specific individuals may elect to not participate at anytime during the study. If a question is uncomfortable to answer, it will be disregarded. There are no direct benefits from participating in the study. There are also no foreseeable risks that are associated with this study due to the nature of the research. If any concerns arise, the research will be carefully resolve and document the situation.

IRB APPROVED ON: 10/25/2012  
STUDY NUMBER: 2012-04-0061

DO NOT USE AFTER: 10/24/2013

### Consent for Participation in the Focus Group

#### Contact Information

Researcher Name- Robert Peters

Email Address- RPeters2201@sbcglobal.net

Phone Number- 972-849-6466

Institutional Review Board by phone at (512) 471-8871 or email at  
orsc@uts.cc.utexas.edu.

#### Consent Agreement

If you agree to participate in the study please understand that participation is voluntary. Compensation will not be provided to participants and there are no foreseeable risks that are associated with this research.

#### Signature

You have been provided with information regarding this study. The procedures, hypothesis and policies have been provided to give an overview of the purpose of this study. Please feel free to ask any questions that you feel are needed prior to signing the consent form. By signing this information, you agree to participate in this study

Printed Name \_\_\_\_\_

Signature \_\_\_\_\_

Date \_\_\_\_\_

Researcher's Name (Signature) \_\_\_\_\_

## APPENDIX D: INTERVIEW QUESTIONS

### *Administrator Interview Questions*

1. What organizational structures do you believe encourage African American students to be successful in mathematics? How have you organized your school to ensure this success?

2. What qualities and instructional skill sets must leaders possess to ensure that African American students are successful in mathematics?

3. What student leadership activities, extra curricular activities or networking opportunities are available for African American students? Do you believe that they make a difference in the success of African American students?

4. Why do you believe African Americans are not successful in mathematics?

5. How does teacher quality affect African American success in mathematics?

6. Are there teacher sponsorship or mentoring of African American students? Do you believe that sponsorship makes a difference?

7. What makes Andrews Middle School different from other schools in Gulf Coast ISD?

***Teacher Focus Group Interview Questions***

1. How has your African American mathematics scores progressed as a department in the past five years?

2. What do you believe has attributed to this trend?

3. How is your school structured? How does this structure motivate African American students to be successful in mathematics?

4. What are best practices that you have observed that work for African American students?

5. Do teachers regularly sponsor or mentor African American students? Has this been effective?

6. What are some conditions that exist in the community that are challenges that affect teaching students?

7. Do African American students have access to networking opportunities or grouping activities inside the classroom? What activities or organizations have you observed to be effective with African American students?

8. What is your belief of the current state of African American students in mathematics? What do you believe needs to change to encourage African American students to be successful?

*Teacher Interview Questions*

1. How has your African American mathematics scores progressed in the past few years?

2. What do you believe has attributed to this trend?

3. How is your classroom structured? How does this structure motivate African American students to be successful in mathematics?

4. What are best practices that you have implemented in your classroom this year to encourage African American students to be successful in mathematics? Do African American students feel that they can be successful in mathematics?

5. Have you regularly sponsor or mentor African American students? Have this been effective?

6. What makes Andrews Middle School different than other middle schools in the district?

7. Do African American students have access to networking opportunities or grouping activities inside the classroom? Does grouping truly affect African American student learning?

8. What is your belief of the current state of African American students in mathematics? What do you believe needs to change to encourage African American students to be successful?

*Parent Interview Questions*

1. What are your feelings or beliefs on African American children and mathematics?

2. What were your experiences with mathematics in school? Does your child have a variety of experiences at home to work on mathematics?

3. How has your child progressed in mathematics? What challenges and successes has he/she had during their time at this school?

4. Are there any conditions within the school that you believe inhibit or encouraged your child from being successful in mathematics?

5. Why do you believe African American students struggle in mathematics?

6. Has your child participated in leadership or extra curricular activities? Do you believe that those groups helped them to be successful in mathematics?

## **APPENDIX E: FOCUS GROUP SURVEY**

### **A Study of African American Mathematics Achievement in High Performing and Marginal**

#### **Performing Middle Schools in Texas**

##### **Survey**

Are there any strategies that are incorporated at the school that are targeted specifically for African American students to succeed in mathematics?

- a) Yes
- b) No

Do you believe that African American students need additional or prescribed strategies to be successful in the classroom relative to their peers?

- a) Yes
- b) No

What qualities have created academic success at your school? Please circle all qualities that apply?

- a) Quality of Leadership
- b) Strong School wide Structures
- c) Teacher Quality
- d) Student Extra Curricular & Student Organizations
- e) Teacher Belief System
- f) School Climate that Expects Success

Do parents typically work with their children to reinforce strategies at home that are taught at school?

- a) Yes
- b) No

Does your school have a strong emphasis on extra curricular activities and student organizations?

- a) Yes
- b) No

Do you believe that students that belong to organizations and are able to collaborate do better than their peers?

- a) Yes
- b) No

What has been the determining factor for African American student success in the classroom at your school? Please circle all qualities that apply?

- a) Strong Consistent Discipline and Classroom Management
- b) Successful Instructional Strategies
- c) Student Organizations and Extra Curricular Activities
- d) Student Grouping and Collaborative Strategies
- e) Teacher Experience Levels

Print Name: \_\_\_\_\_ Years of Experience: \_\_\_\_\_

Signature: \_\_\_\_\_

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