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**USING A DISTRIBUTED LEADERSHIP MODEL TO INVESTIGATE PRACTICES
THAT INFLUENCE STUDENT ACHIEVEMENT SCORES
IN MIDDLE LEVEL EDUCATION**

By

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**Using a Distributed Leadership Model to Investigate Practices
that Influence Student Achievement Scores
in Middle-Level Education**

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ABSTRACT

Few studies have focused on middle school students' academic achievement and overall performances (Flowers, 2003; Leithwood & Jantzi, 2006). Delaware Comprehensive Assessment system (DCAS) used by school officials recognized an emerging trend in which a large percentage of students' academic performances consistently declined over a period of three years. Indications point to standardized test scores lower on each grade level. Students' assessment scores were sixty-six percent lower on the State's DCAS assessment tests in math for sixth, seventh and eighth grades. Fifty-seven percent of the students on the same grade level scored "below standard" in Reading.

The method of this research study is a quantitative multiple regression design seeking to find the relationship between the seven dimensions of distributed leadership and students' achievement scores in Reading and Math. Results from the four schools showed a high statistical significance of correlational scores between distributed leadership practices and student assessment scores.

Implications of the study will allow transferability for stakeholders to generalize how to apply distributed leadership practices and improve student assessment scores. Findings from this research will fill gaps in the literature.

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CHAPTER I: INTRODUCTION

This study will investigate leadership practices and achievement scores to determine which independent variables have the greatest effect on student performance, particularly in high stake assessment scores.

Distributed leadership is described as administrative activities, functions, and initiatives among an organized leadership team comprised of teachers and administrators assigned to formal and informal leadership roles (Witziers, Bosker & Kruger, 2003). As a practice, principals and school officials usually assign teachers to take on multiple leadership roles. Teacher leaders with the skill set to improve an area of the organization may perform various leadership roles. Often, teacher leadership skill sets and instructional knowledge vary based on organizational needs, teaching and learning needs, assessments, discipline, and parent involvement initiatives. Hulpia and Devos (2010) defined “distributed leadership as distributing leadership functions among leadership team members, a group of people with formal leadership roles, including the principal, the assistant principal, and teacher leaders” (p.59).

1.1. Background of the Problem

School officials today are confronted with increasing complexity in operating a school and its integral parts, including the political, social, and administrative components of the educational system require and support from each of the levels mentioned. The framework of distributed leadership centers on promoting and mobilizing leadership activities throughout the organization and expanding the leadership capacity. Harris (2009) indicated that distributed leadership is based on the interactions between many leaders rather than the actions of individual leaders. Distributed leadership moved beyond the traditional top-down approach, in which

principals transform educational institutions to a leadership structure that embraces different leaders within the school. As administrators consider the complexity and demands of operating a school, leadership roles should reflect these changes, allowing the progression of teacher leadership to focus on problem-solving and capacity building. Smylie, Conley, and Hart (2003) referred to this style of leadership as sharing, spreading, and distributing actors across multiple roles and multiple levels of school organization.

Diamond (2007) indicated that, in applying distributed leadership principles, numerous schools and their teacher membership had promoted instructional leadership to an effect instructional improvement and student academic growth. The collective knowledge base and experience of the teachers supporting distributed leadership is an excellent reform initiative for school systems to improve their organizations. Shared leadership functions primarily to promote collaborations between administrators and educators on issues involving curriculum, pedagogy, and assessment (Marks & Printy, 2003). An enormous long-standing gap surfaced in the empirical research on distributed leadership because of the number of evaluations created to satisfy the need for high-stakes assessments in educational institutions. Studies emerging from this body of work focused on investigating teachers' behaviors and perceptions in elementary schools. In addition, some studies focused on principals' practices and leadership styles in high schools, and students' perceptions of principals and how these may influence performance. To address this research gap, more studies in education are needed to improve student performance in middle-level education. Administrators and teachers cannot plan strategically or prepare effective school reform initiatives because of the lack of availability of empirical studies. More studies are needed to learn how leadership practices and administrative activities influence student performance.

Research studies on distributed leadership should focus on the following questions: How does increasing teacher capacity impact student achievement? What impact does a school-wide decision-making process have on student learning? How does student recognition influence student achievement? What is the relationship between leadership practices and student performance? Harris (2009) pointed out, “In the international race to raise achievement and to improve standards, we urgently need new ways of thinking about leadership and leadership practice in our schools. Distributed leadership offers us a place to start” (p.49).

Student performance issues have emerged in urban schools throughout the country. School district officials in the mid-Atlantic region of this country realized that sixty-six percent of middle school students were consistently scoring low on the state assessments in ELA/Reading and Math. Hoyt (2015) explained the federal law and mandates that the individual state assessments mandated students to pass Language Arts/Reading and Mathematics in the sixth, seventh and eighth grades under the No Child Left Behind Act (NCLB 2001). Students’ assessment scores continued to decline in 2013 and 2014. Yildirim (2010) stated “individuals gain knowledge, or learn and understand, in different ways ... these differences depend on many factors, including who we are, where we are, and how we see ourselves and what other people demand and expect from us” (p. 19). Considering the district’s evaluation process, stakeholders in each school worked on initiatives to improve effective teaching and learning strategies and assess students’ ability to demonstrate mastery to pass the state assessments in a consistent manner. Schools that consistently achieve high assessment scores are identified as “high performing” schools. Some urban schools’ assessment scores are not at the high-performing level because many students do not have the requisite academic skills to pass the high-stakes assessment.

The implications suggested that a generation of students would grow into adulthood and cannot prepare themselves for twenty-first-century jobs or take care of their families. This study will analyze how schools can improve student learning and teacher effectiveness while providing information for increasing overall student achievement in middle-level education.

The study examines leadership practices aligned with assessment scores to determine which independent variables (distributed leadership practices) can influence the dependent variable (achievement scores) under the distributed leadership paradigm.

The research question is crucial in defining the quality of the answers and determines the exact method used in a research study. The research on distributed leadership does not come with a workable definition that explains how its application fits in secondary education, particularly middle schools. Several scholarly studies conducted research to understand the impact and factors that affect African American students' reading achievement in early grades. Few studies focus on African American middle and high school students (Flowers, 2003; Leithwood & Jantzi, 2006). During the first two years of implementing the Delaware Comprehensive Assessment system (DCAS), school district officials recognized an emerging trend in which a large percentage of students' academic performances consistently declined. Indications point to standardized test scores for the current school year being lower among this group. Earlier test scores showed that greater than sixty-six percent consistently scored low on state assessment tests in math for sixth, seventh and eighth grades. Fifty-seven percent of the students in the same grade level scored "below standard" in Reading.

The study's quantitative design approach uses deductive reasoning to arrive at a testable hypothesis. Few areas in secondary education garnered as much attention in recent years as assessment and student performance. During the past several years, student assessment has

taken on many forms, such as multiple choice, essay, and portfolio. Teachers should use multiple assessments to determine what students know and can do. Tabachnick & Fidell (2001) noted, “Multiple-choice formats used on most large-scale assessments can provide information about the range of facts and skills students know and can do, but it provides little information on how students process and apply their knowledge” (p. 43).

1.2. Purpose of the Study

The purpose of this study is to investigate seven distributed leadership research questions to determine if there is a relationship between practices and student assessment scores. The study will also provide research-based evidence to principals and teachers to make organizational changes and improve student achievement scores. Middle school principals and teachers will benefit from this investigation by receiving findings that can be transferable into their school’s leadership structure.

In addition, this study’s approach promotes data-driven research that will encourage district officials and politicians to invest more instructional resources and human capital where educational challenges can be addressed and eliminated.

1.3. Research Questions and Hypotheses

Creswell (2006) defines research questions as “specific questions that the researcher seeks to answer which are essential to the research process. Research questions are used as the guiding plan for the investigation” (p. 117). These research questions are aligned in order that the investigation will follow a particular path regarding distributed leadership practices.

1. To what extent does school organization affect student achievement scores?

RH1: Schools with established organizational rules have a much greater positive impact on student achievement than schools not having such established rules in place.

2. To what extent does articulating a vision influence student achievement scores?

RH2: Articulating a vision has a significant impact on student achievement.

3. To what extent does creating an effective school culture affect student achievement scores?

RH3: Effective school cultures significantly influence student achievement

4. To what extent does using instructional leadership influence student achievement?

RH4: There is a significant influence on student achievement scores when effective instructional leadership practices are used in middle schools.

5. To what extent does using research-based data to make informed decisions influence student achievement scores?

RH5: The use of research-based data to make informed decisions strongly correlates with student achievement.

6. To what extent does building teacher leadership capacity influence student achievement scores?

RH6: Building teachers' leadership capacity has a positive influence on student achievement.

7. To what extent does principal leadership influence student achievement scores?

RH7: Principal leadership significantly influences student achievement.

The distributed leadership structure revealed that school leaders who have favorable outcomes leading to effective teaching and learning situations and sustainable improvements in student performance can strengthen academic achievement efforts. Extensive studies, including the study by Gamage, Adams, and McCormack (2009), indicated that leadership styles of school leaders could have positive impacts on teaching and learning environments, leading to

improvements in student performance and academic achievement, (Leithwood & Riehl, 2003; Day, 2004; Harris, 2004; Danielson, 2006; Gentilucci & Muto, 2007).

Wilkinson (2007) argued that distributed leadership differs from traditional or typical forms of leadership, requiring organizations to think, act, and behave in different ways. If researchers are correct in their approach to distributed leadership, then it would be imperative to explore which leadership practices have the greatest impact, so school leaders can transfer findings and results to implement an effective leadership structure in all middle schools. This study's focus is based on works by Gronn (2002), Harris (2008), Elmore (2000), Spillane (2005), and Diamond (2007), the conceptual frameworks of which aligned with the definitions used in their research studies. The focus is largely on examining the relationship of distributed leadership practices to student achievement in a middle school setting.

1.4. Significance of the Study

Spillane, Leithwood, Seashore, Anderson, and Wahlstrom (2004) stated, "Even though research suggests that distributed leadership is more likely to have a greater impact on student achievement outcomes than traditional top to down forms of leadership, the available empirical evidence is not abundant" (p.34). The benefit of this study will be significant because school leaders will gain new knowledge of how the distribution of leadership works in middle-level education. Furthermore, this study will provide a greater understanding of the theoretical perspective regarding the elements of distributed leadership that will allow educators to apply knowledge in a practical educational environment.

Distributed leadership changes the command structure in a way that promotes reflective thinking and provides stakeholders with the opportunity to analyze data and examine leadership

and management practices so school governance can be more efficient. Distributed leadership encourages leaders to take on more roles, administrative activities, and tasks within the academic community and promotes effective school management. Harris and Spillane (2008) stated, “Distributed leadership is not about the large pile of redundant leadership theories; it must engage teachers, teacher leaders, support staff (i.e. counselors, deans, instructional coaches and teacher aides) and other professionals” (p.31).

Huitt (2009) explained organizations must have techniques congruent with individual styles if they are to capitalize on these areas of research. From a broad perspective, the distributed leadership structure enhances a decentralized decision-making process to improve the school’s ability to resolve educational issues and localized problems. Decision-making at different levels of the organization demonstrates leaders’ or the leadership team’s ability to use an effective model to address problems in a systematic manner. This study will focus on practical ways for school leaders to balance leadership roles and responsibilities among all stakeholders to improve school culture and climate in ways that will also improve student achievement.

Wright (2008) has shown that principals can be barriers to distributed leadership. Hatcher (2005) also suggested that principals could be barriers to distributive leadership by holding too tightly to power and control, refraining from nurturing leaders, and choosing to involve only those who support their agenda. In a larger context, school officials confront increasing complexity in operating a school and its integral parts, including the political, social and administrative components of the educational system. Schools experience increased educational challenges; therefore, leaders are building leadership capacity and improving staff development programs, so teachers and other staff members are prepared to assume additional responsibilities

and roles in and outside the classroom. District policy makers and practitioners of leadership at the school level need a model of distributed leadership practice from an organizational perspective. Such a model built on an examination of distributed leadership in a school setting can serve as a guide for school effectiveness.

The primary functions of distributed leadership are to promote collaboration between administrators and teachers on issues involving curriculum, pedagogy, and assessment (Marks & Printy, 2003). The collective knowledge base and experience of the teacher promoting distributed leadership is considered an excellent reform initiative for school systems to improve their organizations. As middle schools settle on a distributed leadership model, the leadership structure must be redesigned to address circumstances that weigh on student performance. Considering the district's evaluation process, stakeholders in each school must work on initiatives to improve effective teaching and learning strategies and to assess students' ability to demonstrate mastery and pass the state assessments consistently.

1.5. Scope of the Study

The study is to highlight the merits of using a distributed leadership structure in middle-level education. The study focused on the statistical significance of utilizing the seven dimensions to measure the influence of the independent and dependent variables. The primary aim of this study is to investigate leadership practices, assessment scores and determine the effectiveness of how variables affect each other in middle-level education.

This study incorporated research findings that support this investigation on school reform initiatives reflecting current trends aligned with distributed leadership in practice. These results deliver insight on the research explored under the proposed study. The outcomes of this

study are important, considering teaching and student learning. It provides additional research-based evidence on how distributed leadership practices are utilized at the middle-school level. Moreover, results from this study showed the impact of teacher leadership on student academic performance statistically, and how instructional leadership roles have evolved in the distributed leadership model.

Spillane (2006) conducted the Distributed Leadership Study at the School of Education and Social Policy at Northwestern University, implementing an elementary school leadership study to examine the behaviors, perceptions, and routines of principals, teachers, and support staff to document how leadership practices are defined through the interactions of stakeholders. The literature has not yet yielded enough original research studies to provide a literary or statistical view of how variables are used to determine the effects of distributed leadership practices on student achievement. In order to address this gap, this study provided research findings and the statistical analysis of how leadership practices are applied in middle schools. A 2003 survey of the distributed leadership literature conducted by the National College of School Leadership concluded, “The relationship between distributed or shared leadership and learning is a crucially important issue, but there is no empirical data at all on this” (Bennett, Wise, Woods, & Harvey, 2003, p. 12). Witziers, Bosker and Kruger (2003) wrote in their study, “To date, quantitative studies linking shared leadership to student learning are virtually nonexistent” (p.139).

1.6. Relevance to Educational Leadership

This study used a preliminary review of literature related to the proposed research. It will also create a comprehensive overview of what a distributed leadership structure looks like and establish how relationships develop between leadership practices and student achievement in

middle-level education. Haycock (1998) concluded that teaching quality is an important influence on student achievement. Following several empirical studies, Day and Harris (2002) found that distributed leadership has contributed to a sustainable improvement in schools to achieve higher levels of student attainment and achievements.

Spillane (2006) asserted that distributed leadership enhanced teacher participation and commitment while Diamond (2007) argued that the transparency and effectiveness of team management led to improvement in the processes, content, and outcomes of student learning. Often, teacher leadership roles and instructional responsibilities vary according to organizational needs, such as promoting teaching and learning strategies, improving assessment scores, decreasing discipline incidents, and creating parent involvement initiatives. Stakeholders should understand the roles of staff members and their roles to determine the responsibilities of the team, advance school policy, and establish a leadership structure (Smith & Piele, 1997).

Finally, this study provided research-based evidence that may resolve any pointless ideology regarding distributed leadership embraced by stakeholders in education. It will also lend empirical support to the distributive leadership perspective.

1.7. Definition of Terms

A review of the literature indicates that the term “distributed leadership” is used interchangeably with similar terms across many studies. The association of distributed leadership with other terms has caused confusion in education. For this research, the term “distributed leadership” and its definition will remain constant throughout this study. The review of literature defines distributed leadership as a specific leadership structure that involves multiple leaders promoting specific ways of thinking about the practices of school leadership (Gronn, 2002; Spillane, Halverson, & Diamond, 2001).

Shared leadership implies shared responsibility identifying, solving, and taking action on problems (Printy et al., 2001). Distributed leadership defined as a distribution of leadership functions within a leadership team that is comprised of teachers and support staff (i.e. instructional coaches, counselors, deans and teachers’ aides) assigned to informal leadership roles.

- **Academic achievement** refers to the success of students in learning and mastering the school subjects they study, as measured by tests of the knowledge and skills taught.
- **Cut scores** are the dividing points on tests between different scores, also known as cut points.
- **Shared leadership** implies shared responsibility and decision-making.
- **Democratic or participatory leadership** allows members of the group to take a greater participatory role in the decision-making process.
- **Decision making** involves stakeholders meeting to determine programs and processes.

The cause of academic and organizational problems and solutions is decision making.

- **School governance** is the organizational structure and program management that focuses on and correlates with teaching and learning within the organization.
- **Problem-solving** is a technique used to examine potential problems that interfere with academic achievement or operation of the organization within the school environment.
- **Collaborative teams** are groups of teachers and principals engaging in structured approaches to collaboration and eventually solving problems within an organization.
- **Professional development** is training of teachers seeking ideas from seminars, colleagues, and other professional sources to maintain knowledge, particular knowledge about instructional practices.

1.8. Limitations and Delimitations

1. The study established an acceptable operational definition of distributed leadership used in middle-level education.
2. This study limited to investigating variables that will include alignment of leadership practices with school-to-school evaluation and outcomes.
3. This investigation examined the relationship between leadership practices and student performance, particularly assessment scores.

The sample size included four middle schools. Typically, school officials will not grant research requests when schools schedule standard state assessments. Any one or several of the middle schools may not be available affecting the research process, and possibly the sample size for this study. This limitation acknowledges that middle schools are participating in the statewide assessment period twice a year.

The operational definition aligned with distributed leadership is too broad and inconsistent across the research spectrum. Hargreaves, Moore, Fink, Brahman, and White

(2006) stated that the educational leadership literature had been characterized by a “blind spot” about distributed leadership (p.89). Because of the inconsistency, the operational definition terms can either inflate or deflate results, and researchers may misinterpret the findings of studies. The lack of an operational definition regarding distributed leadership could be a literature review limitation (Hulpia et al., 2010, (p. 567).

1.9. Distributed Leadership Dimensions

Dimensions created from the Distributed Leadership Questionnaire (DLQ) had the same theme as the research topic. Placing questions into themes allows the researcher to narrow the investigation and limit the focus on 7 research areas rather than 37 response questions. This study will analyze the seven leadership dimensions in each school.

The extent of this investigation focuses on the leadership practices and student achievement scores, rather than individual school artifacts. The study aligned with seven dimensions to investigate whether distributed leadership practices directly influence student success. Leadership practices and administrative activities from the DLQ were broken down into categories. The response questions, including practices, administrative functions, leadership roles, and instructional strategies, were aligned with a leadership dimension aligned with the investigative process. Each item on the DLQ instrument represents a leadership theme which measured raw data and aggregated into simple statistics that show the relationship between distributed leadership practices and student achievement. Using leadership dimensions also provide a wealth of data on how leadership practices are employed in each school. York-Barr and Duke (2004) identified seven dimensions of teacher leadership practice that address what teacher leaders do in their work.

1.9.1. DLQ Referenced: School Organization

A critical aspect of effective school organization is to develop a concept to clarify and cultivate shared understandings about the organization, including its activities and goals that can build a sense of purpose and vision within the organization (Hallinger & Heck, 2003).

Successful educational leaders develop their schools as effective organizations that support and sustain the performances of teachers and students. Exceptional organizational performance is not a random event; instead, exceptional performance is achieved through careful planning, design and discipline (Collins & Hansen, 2011). This category of leadership practices has emerged from recent evidence about learning organizations and professional learning communities (Leithwood, Leonard, & Sharratt, 1998) and their contribution to staff work and student learning (Marks, Louis, & Printy, 2000; Silns & Mulford, 2002). An organizational identity is a particular form of social identification.

1.9.2. Dimension 1: School Organization Items.

1. The school's weekly schedules provide time for teachers to collaborate on instructional issues.
2. An informal structure in place provides professional staff opportunities in school-level instructional decision-making.
3. Teachers who assume leadership roles have sufficient school time to permit them to make meaningful contributions to the school.
4. Teachers who assume leadership roles in schools have sufficient resources to make meaningful contributions to the school.
5. The school's schedule provides time for grade-level teams to meet with the administration to discuss instructional issues.
6. Teachers who provide reading instruction are provided school time to assist their colleagues in improving teaching strategies.

7. Teachers who provide math instruction are provided school sufficient time to assist their colleagues to improve teaching strategies (Davis, 2009).

1.9.3. DLQ Referenced: School Vision

Wormeli (2016) stated “A shared vision development by all stakeholders guides every decision” (p. 54). School Vision Visionary Leadership is defined as the ability to articulate images, or vision, of what the school or organization would look like soon. It is the continuous articulation by the leader of where the school would be. Posner & Kouzes (2002) cited “Inspiring a shared vision is vital for bringing people in any organization together to foster a commitment to a shared future they seek to create.” (p.269). A clear vision offers a core meaning that expresses the importance of working in a school or organization and promotes the shared vision by leaders who must monitor their efforts to empower others. In recent years, leaders, in their role as facilitators, have encouraged others to discuss and plan within the overall school community to develop a collective vision, rather than creating the vision and selling it to others. Kouzes and Posner (2002) found that the administrators they studied invariably linked their vision with their sense of values. Harris (2008) noted, “Vision is always based on assumptions and beliefs about the nature of learning, about the essence of being humans, about the nature of human society, and about the purpose of schooling” (p.48).

1.9.4. Dimension 2: School Vision Items

8. The school has a clearly written vision statement.
9. The teacher can clearly describe the school’s vision.
10. School goals aligned with district goals.
11. The school has a set of shared values that guide school improvement efforts.
12. The school has a clearly written mission statement. (Davis, 2009).

1.9.5. DLQ Referenced: School Culture

The literature on school culture in many studies implies that the meaning of school culture transmits patterns of norms, values, beliefs, traditions and myths understood in varying degrees by members of the school community. Every school has its unique culture. It is an ineffective culture, characterized by the absence of vision and cohesiveness, or an active culture, in which students and teachers exhibit such qualities as confidence, trust, cooperation, and commitment to do their best. Leithwood and Jantzi (2006) defined school culture that encompasses all human symbolic behavior, everything from nonverbal communication to the walls of the cafeteria. Deal and Peterson (1990) referred to culture as “deep patterns of values, beliefs, and traditions that have been formed over the course of the school’s history” (p. 65). Heckman (1993) described school culture as “the commonly held beliefs of teachers, students, and principals” that guide their actions (p. 269). In practical terms, educators talk about school’s culture when they explain to new students “the way we do things around here” (Heckman, 1993, p.272).

1.9.6. Dimensions 3: School Culture Items

13. It is apparent that many of the teachers at my school can take leadership roles.
14. Teachers at my school discuss with one another and help one another solve problems.
15. There are mutual respect and trust among the staff.
16. There are mutual respect and trust between school administration and the staff.
17. Teachers’ instructional learning expectations are high for their students.
18. All students, regardless of their racial or economics status, expected to achieve at high levels. (Davis, 2009).

1.9.7. DLQ Referenced: Instructional Leadership

Strong skills in reading, writing, and mathematics are critical to a child's education. These instructional programs are the core building blocks of learning. From mathematics to music, from science to history, a child's ability is unleashed to its fullest potential by our efforts in literacy and numeracy. The lack of highly trained teachers and principals are needed in schools that are deficient in academic classes. This is one of the initiatives crucial to changing the culture in middle-level education. Educational leaders ensure that the basic building blocks rest on a solid foundation. The instructional leader is critical to providing a solid academic foundation.

MacIver and Farley (2003) identified five district-level responsibilities that influence student achievement: updated hiring practices, using a 21st-century curriculum, adhering to practical instruction programs, getting support for principals, and adopting an ongoing professional development program for teachers. Emphasis is placed on having the ability to get support from board members and for board members to take an active role in school improvement efforts. Schools are often evaluated based on student achievement and growth indicators, and there is extensive research showing that principals can play a key role in support of student success, primarily through their impact on teachers' instruction (Alvoid and Black, 2014; Branch, Hanushek, & Rivkin, 2012; Grissom, Kalogrides, Loeb, 2012; Louis et al., Supovitz, Sirinides & May (2010)

Leithwood, Seashore, Anderson & Wahlstrom (2006) published a study with the Wallace Foundation highlighting the need for instructional leadership within school districts to align their strategies in ways that focus on student learning in the classroom by way of effective instructional programs. This research points to the need for superintendents and teachers to adopt effective instructional programs and bring leadership to their schools. Recruiting highly skilled teachers, however, is not always an easy thing to do.

1.9.8. Dimensions 4: Instructional Program Items

19. Teachers and administrators share accountability for students' academic performance.

20. Regular classroom teachers frequently meet with instructional aides or specialists to the reading needs of specific students.

21. Regular classroom teachers often meet with instructional aides or specialists to discuss the mathematics needs of particular students (Davis, 2009).

1.9.9. DLQ Referenced: Using Data to Make Informed Decisions

Dimension 5 is defined as educational materials, research studies, assessment data, curricula, such as policies, rules, and resources, used to enhance leadership changes within an organization. Leaders use numerous artifact help stakeholders understand the process of change. Some are common core standards, strategic planning, assessment data, and grades and descriptive data. Spillane (2005) stated "leadership practice takes form in the interactions between leaders and followers, rather than as a function of one or more leaders' actions (p.146). Distributed leadership is crucial to identifying effective leadership practices within an organization.

1.9.10. Dimensions 5: Using Data to Make Informed Decisions Items

22. The school uses assessment results to evaluate the instructional program at this school.

23. The school uses teacher-made assessments results to evaluate the instructional program at this school.

24. The school examines and discusses student work samples.

25. Teachers use observation and evaluation feedback from the administration to improve instruction in their classroom (Davis, 2009).

1.9.11. DLQ Referenced Teacher Leadership

Yildirin (2010) stated that “Scholars have introduced various approaches to the classification of learning communities...these approaches stem from different characteristics of the individual regarding the learning process” (p.13). Teacher Leadership teachers must talk with each other to better understand how to approach their work, including such things as what expectations they should have for their students, how to teach the new mathematics curriculum, what the revised professional development policy really means, and how they should respond to changing state standards (Printy & Marks, 2004). Depending on discussions, teachers meet with different teachers learn how to be better teachers. Instructional leadership within such learning communities is often informal; designated or academic leaders rarely guide discussions (Drath & Palus, 1994). These informal teacher leaders help their colleagues clarify values, frame problems, set goals, construct and test theories, and design documents that guide their work. The encouragement of teacher leadership allows instructional leaders to translate collective meanings publicly in a way that creates new frameworks for interpretation and understanding of schools’ and districts’ instructional policy and mandates.

1.9.12. Dimensions 6: Teacher Leadership Questionnaire Items

26. Teachers are interested in participating in school leadership roles.
27. Informal school leaders play a significant role; improving the performance of their colleagues.
28. Informal school leaders play an important role in improving the achievement of students.
29. The school has expanded its capacity with formal opportunities to take on leadership roles.
30. Teachers at my school discuss strategies and share materials.
31. Teachers at my school discuss and help one another with problems. (Davis, 2009).

1.9.13. DLQ Referenced: Principal Leadership

Principals demonstrate leadership in various ways and in different situations.

Administrators create conditions for teacher interaction, including the creation of the organizational structure and policies that formalize ways in which teachers are expected to work together within a formal process (Printy & Marks, 2004). Whether by invitations or by appointments, principals' control who sit on various committees or participates in other decision-making settings.

They establish teaching schedules that provide common planning time. They use and encourage processes that facilitate democratic decisions. For instance, a process protocol intended to bring discipline to the exchange of ideas and to reduce personality conflicts for all meetings. The staff feels fully involved in the decision-making process. In being part of the process, staff members relate participation in the leadership process feel like professionals and responsible for the whole school, not just their own classes of students. When the staff or

committee cannot reach a decision, the principal often refuses to make one, turning the matter back to the staff.

When teachers interact with each other frequently, and when they share leadership responsibilities with administrators, strong norms and standards for their professional work take shape over time (Printy & Marks, 2004). Although individual teachers might employ different instructional strategies, common agreements emerge about the content of courses, the pacing of instruction, and the level of rigor or intellectual challenge. These norms serve as a stabilizing force.

1.9.14. Dimensions 7: Principal Leadership Items

32. The principal actively participates alongside teachers in math instructional meetings.

33. The principal actively participates alongside teachers in reading instructional meetings.

34. The principal is knowledgeable about the school's instructional issues.

35. The principal's goals are aligned with the school district's goals.

36. The principal provides leadership in improving academic achievement.

37. The principal provides a structure that encourages all teachers to participate in improving academic achievement. (Davis, 2009).

Distributed leadership at all levels of middle school matters as leaders in various leadership roles share responsibility and participate in a common decision-making process to resolve issues. Walker (2013) stated “The urgency to improve professional learning is also highlighted by the implementation of new teacher evaluation system” (p.16). It is a distributed leadership model that promotes teachers’ professional development, encourages a collaborative culture and supports effective teaching and learning activities that enhance academic progress of students in middle-level education. Based on a comprehensive principal study that focused on support for instructional leadership, the evidence suggests that large, predominantly urban districts can be laboratories for innovative models of school-leaders training (Mitgang, Gill & Cummins, 2013).

CHAPTER 2: REVIEW OF LITERATURE

2.1. Introduction

The evidential base regarding distributed leadership's impact and its effect has been summarized in numerous books and articles (Leithwood et al, 2009; Harris, 2013). Based on the theoretical framework and review of the literature, many of the seminal studies identified several theories with distributed leadership. A distributed perspective on leadership, however, does suggest a changed role for the principal. Harris (2012) cited "what distributed leadership means for principals in a fundamental change in their understanding of leadership and in the ways they enact their leadership roles" (p.8).

Diamond (2007) described distributed leadership as rooted in activity theory and distributed cognition. Distributed leadership is an integrated view of leaders and how they go about their activities, behaviors, and the situations that changed using a commonly organized decision-making process to expedite the progress or resolve issues. "Distributed leadership is a process used to improve the organizational structure and increase teacher leadership capacity" (Harris, 2013 p.104).

2.2. Distributed Leadership Styles

Gamage, Adams, & McCormack (2009) study focused on leadership styles of school leaders with positive impacts on student learning environments leading to improvements in student achievement and overall academic achievements (Leithwood & Riehl, 2003). The study discusses the effectiveness of leadership structures and styles as they relate to distributed leadership. These researchers focused on how leadership structures and styles affected learning environments during instruction. The results of the study showed that

students engaged during the teaching period were more likely to improve their assessment scores and overall education. Many of the studies in the literature review regarding distributed leadership as reform agent cited these critical factors as responsible for influencing student achievement: changing the climate and culture, updating the curriculum and the instructional process, using data and research-based studies to find out what works, and amend the roles of the principals and teachers. Gronn (2002) developed and discussed the six categories of distribution of leadership. MacBeath, Oduro, and Waterhouse (2005) used these same six categories of leadership distribution in their research.

MacIver and Farley (2003) identified hiring practices, curriculum/instruction support for principals, and professional development for teachers as four key factors influencing student achievement. They researched four critical factors that showed an increase in student achievement. This research will focus on studies that provide critical reports highlighting the benefits and impacts of distributed leadership in the middle school setting. Camburn et al. (2003) believed that offering training opportunities and implementing comprehensive professional development programs contributed significantly to the quality of schooling.

The distributed Leadership framework has a considerable accumulation of literature studies that address many leadership topics involved in school improvement initiatives. Distributed leadership has attracted many educational researchers and scholars who have provided valid opinions and arguments of how this phenomenon is promoted as a school reform effort. Distributed leadership is used as a leadership structure to change or improve educational organizations.

Bennett et al. (2003) believed distributed leadership is not something ‘done’ by an individual ‘to’ others, or a set of different actions through which people contributed to a

group or organization. Distributed leadership is a group activity that works through and within relationships, rather than with individual action. It emerges from a variety of sources depending on the issue, situations and individual with relevant expertise or creativity (Harris, 2004, p.14).

Gasson and Elrod (2007) and Hulpia et al. (2010) viewed distributed leadership as an exercise of cultural interpretation, where a leader exerts influence through managing the meaning of external context and situations. Elements of distributed leadership's framework allow leaders, as a group, to deal with outside influence and examine cases to improve outcomes. School leaders working within a distributed leadership structure will have favorable outcomes leading to greater teacher effectiveness and sustainable improvements in student achievement that also can strengthen academic achievement efforts.

Upon reviewing the literature, researchers Goddard, Goddard and Taschannen-Moran (2007) reported: "a paucity of research investigating the extent to which teachers' collaborative school improvement practices are related to student achievement" (p.162). Most existing research is in surveys and case studies, which do not provide evidence of cause-and-effect relationships. The school plays a significant role in determining the levels of parental involvement. Specifically, schools can outline their expectations of parents and regularly communicate with parents about what children are learning. In addition, schools can provide opportunities for parents to talk with school personnel about their role in their children's education through home visits, family nights, and well-planned parent-teacher conferences and open houses (NEA Reviews of the Research on Best Practices in Education, 2015).

As a growing body of research on distributed leadership has influenced the policy and practice of school leadership, a gap appears to be forming in the literature. Initial studies focused on elementary schools (Firestone, 1996; Spillane et al., 2001; MacBeath et al., 2005), and subsequent research studies have focused on school systems and high schools (Bennett et al., 2003; Leithwood & Riehl, 2003; Smylie et al., 2002). However, there is a lack of empirical research related to distributed leadership practices in middle-level school. These researchers surveyed 452 teachers in 47 elementary schools to determine the extent to which they worked collectively to influence decisions related to school improvement, curriculum changes, improved instructional pedagogy, and professional development. To determine the relationship between teacher collaboration and student achievement, the researchers used Reading and math performance scores for 2,536 fourth-graders. They found a positive correlation between teacher collaboration and differences among schools in mathematics and reading achievement.

Harris (2008) stated, “Even though the research suggests that distributed leadership is more likely to have a greater impact on student achievement outcome than the traditional top-down form of leadership, the available empirical evidence is not abundant” (p. 86). According to Flowers (2003), “an examination of the research literature suggests strategies increase reading achievement in early years may be insufficient because the reading achievement of African American students does not increase at signal levels during middle school and high school” (p. 156). Although several scholarly studies have discussed the impact of the critical factors that affect African American students’ reading achievement in early grades, few studies exist that focus on African American middle and high school students (Elmore, Childress, & Grossman, 2006; Cotton, 2003).

During the first two years of implementing the Delaware Comprehensive Assessment System (DCAS), school district officials recognized an emerging trend in which a large percentage of students' academic performances were addressed in middle schools. Standardized test scores for the current school year will be lower among this group. Earlier test scores showed that greater than 66% consistently scored low on state assessment tests in reading and math for Grades 6, 7, and 8 and 57% of the students in the same grade levels scored "below standard" in reading.

2.3. Distributed Leadership Research Studies

There is an emerging view in the literature calling for teachers to increase their leadership responsibility to realize student achievement efforts. The importance of instructional leadership is evident in two main studies conducted by Cotton (2003) and Waters, Marzano, and McNulty (2004). Cotton's (2003) meta-analysis explored the relationship between teachers, school principals, and student achievement. Cotton reviewed numerous reports, comprised of 49 studies at the primary level, 23 at the secondary school, and four combinations of reviews and surveys. Also, he analyzed four textbooks and designed research-based guides on principals' behaviors. The findings from Cotton's (2003) work concluded that administrators knowledgeable regarding the school's instructional programs had a higher number of high-achieving students than those principals who managed only the non-instructional aspects of their schools. A collaborative relationship between instructional practices and strategies was part of the equation. In England, a recent study of school transformation has shown that distributed leadership is a key component of success and highlights how this was associated with higher performance and gains in achievement (Harris, 2012).

Waters et al. were commissioned to conduct a similar study on instructional leadership practices highly correlated with student achievement. Their study was commissioned by the Mid-continent Research for Education and Learning (MCREL), investigated whether a focus on the quality of instructional leadership had a significant relationship with student achievement. Over 5,000 studies were reviewed of which only 70 published studies identified the significance of instructional leadership on student achievement. Findings from the study revealed that specific instructional practices and responsibilities had the greatest effect on student achievement. Waters et al. explained that the average effect size found between principal leadership, and student achievement was a notable .25 correlations. There were two primary variables: when leadership had a positive impact on school leaders who identified or changed, there was more likely to be a positive influence on student achievement; and similarly, when the leader understood the magnitude of change-leading and adjusted leadership it is more likely there will be a positive effect on student achievement.

2.4. Distributed Leadership Studies Associated with Student Achievement

Gentilucci and Muto's (2007) study focused on student perceptions of principals' instructional leadership behaviors and which most positively influenced students' learning and academic achievements. The data were collected from 39 eighth grade students randomly selected from three schools within the Central Coast of California. Findings from the study revealed that instructional leaders positively influenced students' academic achievement. Further, principals who visited classes regularly for longer periods and did so interactively were perceived as more influential than principals who visited less frequently for shorter periods and were passive. Gasson et al. (2007) and Hulpia et al. (2010) viewed distributed

leadership as an exercise in social interpretation, in which a leader exerts influence through managing the meaning of external context and situation. Throughout this quest to discover the framework of distributed leadership, there is a considerable body of literature on improving schools and organizations across the educational spectrum. Distributed leadership is a relatively new leadership structure used to change the culture and climate of an organization. As distributed leadership processes become familiar to educators, this leadership structure should become systemic to reform failing schools. Distributed leadership attracts many educational researchers and scholars who provide convincing opinions and arguments of how this phenomenon could be promoted as a school reform initiative.

Silns et al.'s (2002) study showed that student outcomes are more likely to improve when distributed leadership sources are shared throughout the school community, so teachers are empowered to influence change. The study's findings also concluded that positive correlations exist between teacher leadership and increased student achievement.

Spillane et al. (2001) conducted a study in which they explored distributed leadership in action to draw conclusions after examining different distributed leadership activities that contributed to school improvement and student learning. The researchers used two empirical studies of leadership to consider the concept of distributed leadership, the roles of teacher leadership, and the inherent barriers to distributed leadership. Findings from these empirical studies indicated that employing any of the forms of distributed leadership are more likely to establish a leadership structure, foster a collaborative culture among teachers and enhance student achievement at the middle school level.

Leithwood and Riehl (2003) conducted similar research on a larger scale which showed the effects of leadership style on student learning. Their findings suggested that,

through distributed leadership, teacher leaders actively involved in supporting less experienced teachers, embracing goals, and understanding the changes needed to enhance teaching and student learning. Several studies have noted clear implications that the distributed leadership style is more likely to influence student achievement and internal teacher leadership capacity. They suggest that the days of the principal as the only instructional leader are gone.

Elmore (2000) indicated, “Stakeholders believe that administrators can no longer serve as single instructional leaders for entire schools without the substantial participation of other educators.” (p.109). DL embraces collective effort, promotes a shared sense of purpose and mission, engages many in collaboration across roles, and develops organizational cultures that set high expectations for adults and children. A well-planned leadership structure can yield a fertile environment for meaningful changes in middle-level education.

MacIver and Farley (2003) and Waters and Marzano (2006) identified hiring practices, curriculum and instructional support, and professional development for teachers as four key factors influencing student achievement. Further, these researchers suggested student performance indicators for administrators can determine schools progress in these areas. MacBeath et al. (2005) believed that distributed leadership is not something ‘done’ by an individual ‘to’ others, or a set of different actions through which people contribute to a group or organization. Distributed leadership is a group activity that works through and within relationships, rather than individual action. It emerges from a variety of sources depending on the issue and with the expertise or creativity. (Bennett, Wise, & Harvey, 2003; MacBeath et al. 2005).

Cotton (2003), Gamage et al. (2009), Waters et al. (2004), and Gentilucci and Muto (2007) have asserted distributing leadership practices have a significant impact on student achievement and the instructional process. The findings were predominantly from U.S. low socioeconomic status (SES) schools and involved students, teachers, principals, school councils and community members, and superintendents. Gamage et al.'s (2009) research study's findings revealed positive results from principals who demonstrated models of teaching techniques in classrooms and during conferences and gave praise to teachers. The same results suggested the role of principals as instructional leaders should include a focus on promoting professional growth and emphasizing improvements throughout the entire organization.

Charting the changes made by individual leaders who recognize the potential of distributed leadership as a structure, Fletcher, and Käufer (2003) traced three shifts in leadership thinking. The first change described leadership as distributed and interdependent, rather than as a set of attributes or behaviors found in formal, hierarchical leaders. Leadership is a set of practices or tasks carried out by people at all levels of the organization (Firestone, 1996; Kouzes & Posner, 2002; Spillane et al., 2001; Printy & Marks, 2004).

The second shift focused on the distributed leadership structure as rooted in promoting social interaction and collaboration among stakeholders. Leaders and followers create leadership together (Burns, 1978). It is a dynamic, multidirectional, collective activity that takes place in and through relationships and webs of influence among individuals with common interests and goals (Drath et al. 1994; Creswell, 2009).

The third shift emphasized that distributed leadership develops within learning undertaken by people and groups that result in greater shared understanding and, ultimately,

positive action (Argyris & Schön, 1996; Printy 2004). This shift has allowed stakeholders to establish a joint decision-making process, so initiatives are acted on with fidelity. The distributed leadership reform model promotes learning for all stakeholders. Some leadership structures may focus on skill development (e.g., specific instructional tactics and awareness) and group collaboration and relational skills (e.g., instructional discourses, normal decision-making processes, regularly scheduled meetings, and staff development). Being dissatisfied with some of their instructional models, the principals focused on staff development programs to improve teaching and learning. Spillane (2006) discussed leadership “as a product of the interactions of school leaders, followers, and their situation rather than as a product of a leader's knowledge and skill” (p.144).

In schools using distributed leadership as a reform model, the collaborative experience involves different collaborations. Principals, teachers, and members of the school’s improvement team use various levels of cooperation to develop positive outcomes (Hallinger & Heck, 2009). Printy, Marks and Bowers (2001) conducted a study which investigated principals and teachers matched with other innovative administrators and educators to determine students learning. Three measurable constructs were used in the study to determine students’ academic achievement: support for organizational processes, reoccurring issues, and student assessment. Their findings showed levels of tension and interactions to exist between both groups. The researchers pointed out this tension could either affect or promote successful leadership in schools, improving the instructional process.

Data provide a way to verify what students are learning and allow teachers to examine the academic progress of students aligned with instructional goals. However, making sense of data requires concepts, theories, and interpretative frames of using data

systematically. To ask questions and obtain insights about student progress is a logical way to monitor continuous improvement and tailor the instruction to the needs of each student. Armed with data, educators can make effective instructional changes aimed at improving student achievement, such as prioritizing instructional time, targeting additional individual instruction for students struggling with particular topics, identifying individual students' strengths more easily, making instructional interventions can help students continue to progress, and gauging the instructional effectiveness of classroom lessons (Aaron, 2009; Knapp, 2006).

2.5. Distributed Leadership v. s Shared Leadership

Stakeholders work to go through the leadership process of changing the structure of the school, but do not realize the major underpinnings of shared leadership and the organizational literature. Shared leadership remains misunderstood. The review of literature comprises direction shifts, shared leadership framework, associated theories and the concepts aligned before settling on a shared leadership structure.

Principals, teachers and district officials within the organization must go through the strategic planning stage to see what leadership initiatives will work and establish a period to start. Policy makers, practitioners, and theorists increasingly identify “distributed,” “shared” and “collaborative” leaderships as important means of enhancing the quality and ensuring continuous improvement in education. Four research reports explained the conditions, processes, and consequences of these relatively new “post-heroic” ideas regarding shared leadership structures. This was reported in a publication called Literature Review: A leader model integrating a comprehensive assessment process with leadership practices by Renee Rudloff: The Connexions Project (2010).

Researchers Leithwood and Mascall (2008) believe distributive leadership is far superior to traditional hierarchical forms of leadership. Distributed leadership encourages the combined strengths of its members and appreciation of interdependent relationships for greater commitment to the organization. Wahlstrom, Seashore & Louis (2008) believe trust linked to shared leadership results in a greater collective decision allowing reform initiatives to produce improvements in student learning. Apart from that, the authors demonstrated shared leadership was more important in high schools than elementary.

2.6. Definition of Shared Leadership

Shared Leadership in practice is defined differently in many of the school districts throughout this country. However, shared leadership concepts are driven toward school governance by increasing the number of staff involved in making important decisions to improve the school's organizational structures, which lead to effective teaching and student learning.

The concepts of shared leadership and the framework are comprehensive with a large volume of research articles and periodicals. According to the review of the literature, the workable definition for shared leadership is a practice of collaborative leadership based on relationships between individuals and groups which focus on improving instructional leadership among teachers, as opposed to the traditional the top-down, or hierarchical system of school governance within the organizations. Shared leadership is widely viewed as a change from the traditional forms of school governance where traditional top-down principals or chair leadership team structure makes most school decisions without considering or soliciting the advice, feedback or the participation of others within the school community. Several researchers discussed the difference between distributed leadership and

shared leadership. The five reports comprise an earlier publication from the Center for Excellence in Leadership (2003) on Distributed and Shared Leadership. Researchers Hulpia & Devos, (2010), Diamond (2007), Danielson (2006) and Spillane (2006), Waters & Marzano (2006) addressed distributed and shared leadership themes to resolve erroneous concepts and eliminate the confusion which emerged from other researchers' work.

Diamond (2007) viewed distributed leadership as the vertical dispersal of authority and responsibility, but displayed shared leadership as a horizontal-type of authority. The horizontal-type structure and the conceptual framework suggest the authority and responsibilities given individually or to multiple stakeholders to improve a single project or problem over a short period. The principal expects feedback and a resolution that significantly change or eliminate the issues which subsequently enhances the environment of the school.

Elmore (2006) argues that the literature on distributed leadership typically assumes that leadership is enacted in the same way, whatever the level of participant. His research challenges this view, suggesting that leadership behaviors are more relevant to middle managers than they are to senior managers or principals. He highlighted the need for a fundamental re-assessment of training and development programs regarding "leadership structures," particularly as it applies to different levels of staff of an organization.

Harris (2009) describes how shared leadership developed with small middle management teams across the educational spectrum (i.e. elementary, middle & high schools) with the organization's local authority. Harris identifies how shared leadership develops between team managers or leaders who have relatively distinctive leadership teams and priorities. Her study reveals the importance of relationship development in building a

leadership team and concludes shared leadership can affect positively individual skills and confidence of teachers.

2.7. Theories Associated with Distributed Leadership

Diamond (2007) explained distributed leadership as an outgrowth of activity theory and cognition perspective. Distributed leadership is a group of leaders and their way of thinking about administrative activities, tasks, and situations that have changed the common organizational decision-making process to expedite progress and resolve issues.

Spillane (2006) analyzed the sociocultural theory about the context of leadership (situation) that constituted leadership practices and influenced interactions between leaders and followers. The social-cultural theory applies in this study because the concepts are based on teacher collaboration. Spillane (2006) analyzed the Socio-cultural context of leadership (situation) that constitutes and defines leadership practices and influences interactions between leaders and followers.

Smylie and Hart (2003) and Wright (2008) explained their views on the social capital theory that suggests that social relations enable or restrain productivity, thinking, and learning. Wright (2008) emphasized how “attention shifts from people’s actions to their social interactions” (p.135).

Often practitioners fall short in recognizing the values of theory and research in order to better understand classroom practices and ways that might be improved (Howard, 2014). From the organizational perspective, stakeholders, including students, teachers, principals, and support staff, learn through interaction, collaboration, and social contact, which are essential components of distributed leadership model. The primary instructional goal is to

encourage student engagement by discussing concepts and applying learning strategies to improve student achievement. These instructional components follow inquiry-based learning, problem-solving models, and cooperative learning strategies utilized to improve student performance

Harris (2004) and Bennett, Harvey, Wise & Woods (2003) discussed the distributed leadership framework, including closely related theories. They believed that leadership should emerge as a group activity throughout the entire organization. In order to use a distributed leadership model, group activities encourage positive relationships and collaboration among staff members to resolve educational issues.

2.8. A Historical Perspective of Shared Leadership Theories

The pursuit of shared leadership theory is widespread and aligned with several areas of education. Shared Leadership review of literature comprises three entire generations of theories: (McGregor, 1985) Behavioral Theory, (Feidler, 1997) Contingency theory, and (Burns, 1978) Transformational Theory. Although theorists have focused on leaders and leadership with different lenses, it is not common to see combinations of elements from various theories. There is a commonality among the leadership theorists regarding the effect of such factors as leader influence, communication, and decision-making on the success of the organization (Leithwood, Mascall & Strauss 2008). As public education grew, hierarchical, bureaucratic organizational structures defined schools and school systems (Darling-Hammond, 2000). Teachers focused on the learning events within their classrooms with little opportunity for collaboration with other professionals. Educational systems faced tightened regulations, increased requirements, and decentralized power.

2.8.1. Behavioral Theories

B. F. Skinner discussed the Theory of Learning. He stated, “Teachers must learn how to teach they need only to be taught more efficient ways of teaching. Behaviorism assumes that a learner is essentially passive, responding to environmental stimuli. One of the principles is that the individual starts out with a clean slate, and behavior shaped by positive and negative reinforcement. Behaviorism embraces Theory of learning is a precursor to cognitive learning” (1950, p.196).

The questions raised by the limitations of trait theories paved the way for new considerations in the study of leadership. Attention moved from traits to behaviors as a way of conceptualizing and studying leadership. Behavior theorists did not readily accept new data or the emerging concepts from the study.

En Guestroom stated, “The behavioral theorists have been particularly interested in definitions of leadership that provided the basis for objective observation, description, measurement, and experimentation” (2000, p. 11). Gamage (2009) and others associated with the Ohio Leadership Studies developed the Leader Behavior Description Questionnaire (LBDQ). This instrument is used to study leader behavior. En Guestroom's “Contingency leadership theory is aligned with Behavior Description Questionnaire to understand how behaviors impact the act of leadership skills and styles.

2.8.2. Contingency Theories

Scholars look at the context in which leadership practices are used throughout the organization. The lack of attention to the effect of internal and external factors on leaders’ behavior brought yet another shift in thinking and moved the focus of theorists from leaders

to leadership (EnGestroem, 2000). This body of work focused on the relationship between the situation and the leader's actions. There was recognition of relationships between the leader, the members of the organization, and external factors and policies, which are congruent with organizational outcomes. This is probably the most prominent contingency theory of leadership.

The theory of action connected with organizational learning is known as Congruence Theory. The work of Chris Argyris & Donald Schon (1996) has influenced thinking about the relationship between people and organizations, organizational learning and action research. Firestone (1996) identified the contingency theory, "The loose coupling perspective and the garbage can model" (p.415). The content includes leadership behaviors and the relationship of leaders for consistent purposes. However, researchers proposed that leaders' effectiveness were results of the congruence of organizational expectations and personal needs.

2.8.3. Transformational Theories

Based on historical analysis, Burns (1978) claimed power is overemphasized in the theories of leadership. Burns identified transactional leadership and transformational leadership as two types of leadership that result from interactions. He believed leadership occurred as the result of the relationships among motives, purposes, resources, leaders, and followers. The power of transformational leadership lies in one's ability to inspire in others the commitment to work toward a common purpose and the ability to carry out the tasks to accomplish shared goals (Spillane, Halverson & Diamond, 2004).

As demands increase for educators treated as capable, professional individuals in the workplace, district officials and school leaders' ideas about leadership are changing. They became more attentive to teachers and the unique contributions they could make to the organization. The challenge of leadership was how to better align the needs of the worker with the needs of the organization. There is a transcendence of self-interest by both followers and leader. They have a higher level of personal commitment to the goals of the organization.

2.9. Shared Leadership Models of Distributed Leadership

Researchers have studied various models of leadership practices in education. Hallinger and Heck (2009) analyzed empirical research on the relationship between the principal's role and school effectiveness produced from 1980 to 1995. Only forty studies meeting their criteria were found during this 15-year period. This is interesting considering that the vast majority of reform initiatives focused on principal leadership as the key to instructional effectiveness. Hallinger and Heck's acceptance that the concept of shared leadership is always evolving led them to conclude there is no single theory of leadership effectiveness valid in all contexts. Based on their analysis of the studies, Hallinger and Heck called for greater study of school conditions that influenced direction to improve school performance.

Leithwood & Riehl (2003) conducted an analysis of a representative sample of contemporary literature on shared leadership. The sample derived from all feature length articles on leadership published in four educational administration journals between the years 1988 and 1995. Four journals were *Educational Administration Quarterly*, *Journal of School Leadership*, *Journal of Educational Administration*, and *Educational Management and Administration*. One hundred and twenty-one articles were published on the basis for

identifying contemporary models of shared leadership practices used to align with achievement initiatives. Some reports blended multiple theories of leadership while others only implied a particular leadership perspective. After review of these articles, Leithwood and Riehl identified six categories of current leadership practice. Each type defined a primary focus and fundamental assumptions (2000).

2.9.1. Forms of Collaboration Among Teachers

Three forms of collaboration take place in a distributed leadership model. Creative collaboration refers to a dynamic that is often interdependent and links to groups or individual, but is distinct in what achieved and what is required of leaders. Connective collaboration requires a broad, loosely connected community that maintains the awareness of activities. Ideally, using technology allows them to discover or obtain resources, insight, and expertise where stakeholders may have known of this information.

Compounding collaboration refers to an individual or group and its relationship, involving thinking and the consideration of work already completed and continuous with a group they started with initially. Carpenter (2010) has called collaboration the “common knowledge effect,” as first articulated in 1993 by Daniel Gone Reid Hastie. Gigone and Hastie found that, in groups, the majority of members possess the same knowledge, which becomes the basis for discussion. Minority-held information affects the decision-making process. Stakeholders rush to solve problems with limited information or establish incorrect guidelines and parameters based on incomplete information.

The literature supported by many seminal studies pointed out the importance of instructional leadership and how administrative functions and the specific roles of leaders

lead to significant improvement in student achievement. Gamage et al. (2009), Cotton (2003), Gamage (2006b), and Gentilucci and Muto (2007) have asserted that these practices utilized by principals have a significant impact on student achievement. Principals and school leaders adopt a clear focus on student learning, articulate a vision, develop student-learning goals, adhere to established rules, and create expectations for learning for all pupils.

Central elements of school improvement include: providing instructional leadership through discussion of issues, observing classroom teaching and giving feedback, supporting teacher autonomy and protecting instruction time, being accountable for affecting and supporting continuous improvements through monitoring progress, and using student achievement data for program enhancement (Gamage et al, 2009; Cotton, 2003).

Leithwood, Mascall, and Straus (2007) and Hulpia et al. (2010) cited that principals have a great deal of responsibility for making distributed leadership work in the school (e.g., Harris, 2003; Smylie et al., 2002). Successful outcomes of distributed leadership depend on administrative functions and initiatives. Principals should possess the requisite skill set to promote various distributed forms of leadership that will enable agents of the administrative leadership team. One of the drawbacks of using a distributed leadership structure is that principals often select teachers to take on leadership responsibilities based on their knowledge.

As some evidence suggest it is important for administrators to base their selections on knowledge of what teachers can do by reviewing their skill sets and inquiring about their professional interests. Sometimes principals may be reluctant to tackle professional development goals that would benefit individual teachers (Leithwood & Riehl, 2003).

2.9.2. Teacher Collaboration

Spillane and Diamond (2007b) discussed leadership “as a product of the interactions of school leaders, followers, and their situation rather than as a product of a leader’s knowledge and skill” (p. 144). Within democratic groups, three forms of collaboration take place in a distributed leadership model: creative collaboration, connective collaboration, and compounding collaboration. Creative collaboration refers to a dynamic that is often interdependent and links to groups or an individual but is distinct in what achieved and what required of leaders. Connective collaboration requires a broad, loosely connected community that maintains awareness of activity, and ideally, the technology allows the community to discover or obtain resources, insight, and expertise where stakeholders may know of this information.

Finally, compounding collaboration refers to individuals or groups of people using discourse and thinking to consider the work already completed and continuously connect with the panel of people they started with initially. Minority-held information affects the decision-making process. Stakeholders rush to solve problems with limited information or established incorrect guidelines and parameters based on incomplete information. Harris (2004) argued that distributed forms of leadership and organizational development, change, and improvement are powerful. The data were collected from 39 eighth grade students randomly selected from three schools on the Central Coast of California.

Findings from the study (Harris 2004) revealed that instructional leaders positively influenced students’ academic achievement. Principals who visited classes regularly for longer periods and did so interactively were perceived as more influential among students

than administrators who visited less frequently for shorter periods and were less interactive with students.

Leithwood et al. (2008) conducted a study that focused on the climate and culture of the school as an approach to student learning. The study investigated secondary schools in the main urban areas in 2006 and 2007. Data from these studies indicated that primary and secondary school principals viewed leadership actions included renewing and reviewing the vision statement and reestablishing academic direction for their schools, as having “a very significant” or “substantial” impact (p. 76). The focus of the leadership actions cited was on common core standards, school improvement initiatives, student achievement, and restoring the school climate and culture (about school vision and directions). Findings from the study perceived to have had a substantial positive impact on the climate and culture of the school and the school’s approach to teaching and student achievement. Administrators were more likely to cite significant outcomes of students’ engagement in learning and the way teachers teach while principals were more likely to report a significant impact on pupils’ attainment and progress.

2.9.3. Decision-Making Methods Associated with Distributed Leadership

Establishing a joint decision-making model is crucial in defining the leadership structure and determines how decisions made within the organization. Group decision-making is a participatory process in which multiple stakeholders respond collectively, resolving problems, analyzing data, and discussing educational issues that may affect their organization. Group decision-making has a profound effect on student achievement. At several levels of stakeholder involvement, leadership teams are deciding and solving educational issues that change the climate and culture of the organization. Group decision-

making is a shared leadership practice encouraged and should distinguish between the concepts of teacher leadership, teamwork, and leadership efficacy.

Harris (n.d.) stated, “Given the trend toward more democratic decision-making and participation in leadership activities, relatively little understanding about applying the day-to-day functionality of a distributed model to the operational management of a school or how distributed leadership is related to school improvement” (p. 24).

The number of participants involved in the decision-making process may vary; however, the ranges are from eight to twelve members, depending on the size of an established leadership team. The decision-making methods used to resolve decisions are either structured or unstructured as situations complicate circumstances, such as time constraints, financial issues, or policy mandates. The decision-making process allows members of a leadership team and other stakeholders to participate in decision making by having a voice and moving the organization forward. Teachers having the ability to share ideas and strategies with collaboration among others provide exemplary instruction helpful to increase student learning. Leadership team involvement is a sound decision to reflect on school-wide initiatives, and enhancing the quality of instructional practices should be the primary function of school leadership.

Brainstorming oriented studies (Lewin, 2006) suggest that individuals working alone and pooling their ideas can generate more suggestions than the same people working together on decision-making teams can (p.49). In addition, these studies showed that individuals who work alone and subsequently share their ideas produce on average nearly twice as many ideas

as do brainstorming teams who work together. However, although individuals may be better than teams in formulating new ideas, teams are better at evaluating situations than individuals. Several shared decision-making methods are used in education, particularly in secondary school systems. These conventional group decision-making methods are brainstorming, force field analysis, and appreciative inquiry. Brainstorming is a well-known technique for stimulating creativity in groups and team decision-making. The brainstorming decision-making method involves members of the decision-making team describing three to five situations and the solutions to resolving an issue. The purpose of brainstorming, from a group standpoint, is to enhance activity through team discussions. The majority of the team members will usually control the outcome. Participants must describe using the brainstorming decision-making method, the situation, so members of the leadership team will have a complete understanding of the issues or problems considered. The group leader or facilitator will ask for ideas of how best to resolve problems. Sometimes the facilitator will record the ideas on a flip chart or electronic smart board. As the members of the group eliminate or exhaust ideas, evaluating each suggestion allows a resolution to the problem. Putman and Paulus (2009) indicated that participants generate ideas either alone or in interactive groups and either with the regular brainstorming guidelines or with additional rules designed to increase further the number of ideas.

Force field analysis is a tool used to resolve problems, issues, or situations that stakeholders want to change in an organized, consistent matter. Kurt Lewin (2006) explained the ability to control and manage organizational conflicts or situations is a balance between two or more factors that may cause hardship for the organization. Factors are identified on both sides of an issue. The question should highlight the severity of the situations. When the

situation is understood, these factors can be resolved in an organized, systematic way. With force field analysis, participants list the “pros” and “cons” and then score the factors for and against the decision. The scores are totaled, and leadership teams decide which of the pros and cons have the highest score.

If the scores are the same or too close to judge, the group leader can add additional steps to the process and then review the factors affecting the decision and create an action plan to increase the “for” and decrease the “against.” The group could repeat the force field analysis with new conditions. The process will become clearer and justifiable. Below are the steps teams will use to complete the force field analysis process.

List all of the “for” (pros) and factors “against” (cons) of a decision or an issue. Members of the leadership group must not ignore intangibles or emotional conditions or situations. Ignoring these extraneous conditions can undermine your decision later during the process. Give each factor a score between one and five, with one being the lowest and five being the highest or strongest. Draw opposing arrows for each factor where the size represents each score. The leader will total the “for” and the “against” to get scores at the end of this process. The leaders or teachers can consider changing the scoring to refine the process and understand a different perspective of the problem or issue by considering other analytical options. Any member of the group can discuss a possible action plan and address any concerns (Lewin, 2006).

The Appreciative Inquiry (Cooperrider & Srivastva, 1987) decision-making method encompasses four principles: discovery, dream, design, and destiny. Discovery means that participants reflect on and discuss the best scenarios that can come out. The second stage is a dream. During this juncture, participants are asked to imagine their group, organization, or

community and attempt to identify the common aspirations by thinking positively. In the third stage of the method, participants are asked to develop concrete proposals for the organization. Commonly at this stage, the social, architectural process encourages participants to create an action plan that could change the organization. The fourth and final stage of the model is the delivery or destiny stage.

These stages comprise participants working to create strategies, review details and possibly seek solutions for an action plan to implement the organizational changes generated by the group. Cooperrider and Srivastava (1987) stated that “Appreciative inquiry has the social potential of a social system which begins with appreciation, it should be collaborative, it should be impersonal, and it should be applicable” (p. 134).

2.9.4. Building Teacher Capacity and Efficacy

Hulpia et al.’s (2010) research included an investigation of the quality and distribution of leadership functions among the leadership teams. The study was divided into two core leadership functions: (a) developing teacher support and capacity and (b) teacher evaluation. The findings showed that supportive principals have a positive impact on teachers’ organizational commitment and student achievement outcomes. Furthermore, the study concluded that distributed leadership has positive effects on teachers’ efficacy and promotes higher levels of morale. Successful outcomes existed when leadership circulated toward teachers depending on the administrative functions and initiatives. Teacher teams have emerged as a vital school-wide reform strategy. This has renewed and heightened interest in using leadership and instructional teams in middle schools. Scholarship on professional learning communities (PLCs) and organized leadership teams suggests that the impact is more likely to be effective during the shared decision-making process and through

collaboration among teachers. However, studies have shown that schools where teachers are part of a structured leadership team and involved designing curricula, strategies, staff development activities, the disciplinary process was more efficient than when teachers were not actively involved. Because of these initiatives, students have achieved at higher levels in high-stakes assessment programs. Many directly and indirectly affect students' achievement because they allow teachers to influence instruction and introduce research-based strategies that can be more efficient.

2.9.5. Instructional Efficacy

Many studies have repeatedly indicated the importance of adopting effective instructional leadership practices in a middle school setting. These studies have characterized instructional leadership practices in four major dimensions: vision, mission, and student learning goals shared responsibility between principal and teachers, school culture and governance, and finally, instructional leadership practices. Instructional leadership teams and other groups, such as professional learning communities, positive behavior support committees, and department chairs must establish and articulate a vision in which stakeholders—particularly parents, students, teachers and the community—can visualize and communicate shared goals. Hoy and Miskel (2005) suggested that successful instructional leaders attributed their success to having vision, knowledge, willingness to take risks, willingness to put in long hours, willingness to continue and grow constantly, ability to thrive on change, and ability to empower others.

Instructional leaders must constantly state the school’s vision—what it looks like, how stakeholders will move toward shared goals, and what actions are taken to reach their objectives. Leaders can use the vision statement to generate interest, encourage stakeholders to visualize a mental picture of how teaching and student learning will become effective, and increase teacher capacity for other teachers who may take on leadership roles. If the vision is not properly articulated and promoted throughout the school, then it will be most likely to fizzle out because of lack of interest to change the organization. During this process, instructional leaders may allow stakeholders to work actively in developing the vision and goals of the school. Principals who are effective instructional leaders become successful leaders by improving the quality of the instruction and making it the priority.

Teachers who take on instructional leadership roles play an equally important part in developing the instructional framework, establishing learning objectives, and investigating “best practices” that will improve teaching and student learning efforts. Twenty-first-century learning has placed greater demands for teacher accountability to improve student achievement in middle-level education. Principals and teachers are moving toward improving the performances of students through collaboration and shared responsibility. Instructional leadership is a model for effective schools having principals as a collaborative figure in school regarding student achievement. Dissatisfied with some instructional models, administrators have focused on staff development programs to improve teaching (Wright, 2008).

The Federal Department of Education and individual departments of education require schools to develop academic plans to meet standards-based curriculum guidelines by which students can improve or achieve mastery of learning. Local schools must focus on

implementing these requirements with fidelity. The results, however, suggest leading instructional efforts have involved school principals making school achievement initiatives a primary function. To accomplish these challenges, which aligned with national and state expectations, school leaders must focus on teaching and student learning, especially on measurable learning goals and objectives. As instructional leaders, effective principals and leadership teams rely on empirical data to facilitate curricular and instructional decisions. Principals must analyze and reflect on the consequences of decisions while making teaching and student learning the shared responsibility of all stakeholders.

The major challenge facing schools today is closing the achievement gap, particularly considering the legal mandates to improve student achievement. In the past, the traditional approaches to solving any instructional or educational problem were given to the school principal, as the primary instructional leader to improve student achievement. Teacher participation regarding the dispersal of leadership authority within a school can assume greater roles in school improvement efforts (e.g., Harris, 2009; Fullan, 2001; Lambert, 2003; Leithwood et al., 2008; Sergiovanni, 2001).

2.10. Sustainable Assessments and Achievement Outcomes

School leaders are prompted to use research findings that yield ways to enhance sustainable achievement assessments data in all K–12 classrooms because of the demands for building leadership capacity. Following these studies on student achievement, researchers have investigated an unquestionable positive relationship between those students exposed to 21st-century standard-based curricula and high-quality instructional models which provide students with more effective academic skills. Marzano, Marzano, and Pickering (2003) stated, “Assessment practices reflect implications for effective teaching and student learning

under any standard-based curriculum” (p. 125). However, assessment practices are constantly changing to match reform efforts as school leaders monitor the academic progress of their schools. These dimensions of learning aligned with local school district reform efforts improve teaching and learning.

Danielson (2006) pointed out that a school’s approach to student learning involves focusing on several interrelated aspects: results, curriculum, effective assessment, and teaching. In the past, teachers just used chapter tests to determine if the students answered the greatest number of questions correctly.

Student progress results are meaningless because the instructional content does not match the assessment content. It is safe to speculate that teachers trained to perform comprehensive assessment strategies did not realize the importance of establishing an ongoing protocol for evaluating students. More importantly, teachers who provide differentiated instruction may have students with severe learning difficulties and may find it difficult to narrow the academic gaps among students on each grade level. However, it could be potentially harmful to students when teachers’ decisions are made based on assessment results using tools inadequate for the task.

As districts establish assessment guidelines in both formative and summative formats, this practice is created to measure how students are meeting instructional goals. Gamage et al. (2009) stated, “in practice, these principals constantly encouraged teachers and students to attain higher levels of achievement; adopting collaborative planning processes, ensuring that all school development programs geared for the success of all students” (p. 6). Using distributed leadership practices while creating a sound structure, students will improve academic skills and enhance competencies needed to succeed in school. Learning

competencies allow schools to promote learning that includes reasoning, critical thinking skills, and problem-solving. Students can make meaningful connections in a constructive environment while teachers work collaboratively with other teachers to improve the instructional process. Wormeli (2016) mentioned that “effective middle grades educators make a conscious choice to work with young adolescents and advocate for them” (p.18.).

According to the literature review, as teachers meet learning goals and objectives, schools will be in a position to provide students with positive learning experiences that are authentic and contain meaningful content (Secretary’s Commission on Achieving Necessary Skills [SCANS] Report for America, 2000).

Middle schools must totally commit to the participation and execution of many of the leadership dimensions aligned with the school governance concepts. These dimensions include interdisciplinary teams; advisory groups; common planning time for teachers; discussions of curriculum alignment, instructional leadership, multiple assessment methods; and an emphasis on teaching and student learning, shared decision-making, and the importance of professional development. The Association of Middle Level Education also identified these characteristics in -This We Believe: Successful Schools for Young Adolescents (2003) and This We Believe: Keys to Educating Young Adolescents (2010), two position papers on middle school education. If schools are seeking an accurate appraisal of how well they are helping students achieve learning goals, then they must change the assessment programs that reflect the changes in curriculum and instructional process. The connection between curriculum reform and student assessment is critical to ensuring success in improving achievement goals. In the past, it was not considered essential for all students to

learn rigorous content; many jobs were available for students with minimal academic skill (National Research Education Laboratory [NREL], 1989).

In today's information age, jobs that used to require low levels of reading and mathematical skills now require workers to use and understand 1,000-page technical manuals and computer-assisted diagnostic tools for treating of job-related problems (NREL, 1989). Now that the world of work is changing, the U.S. Departments of Labor and Education formed the Secretary's Commission on Achieving Necessary Skills (SCANS) to study the competencies and skills that workers must have to succeed in today's workplace.

CHAPTER 3: METHODOLOGY

3.1. Research Design

The method of this research is a quantitative correlational design attempting to find the relationship between the seven dimensions of distributed leadership practices and students' achievement scores in reading and Math. The design allows a comprehensive measurement process of the variables, including a detailed statistical analysis determining the impact of leadership practices on state assessment scores in middle-level education. This study investigated leadership practices, provided data to show associations, explained key findings, and determined the significance of the independent variables against the dependent variables. The multiple regression analysis represents statistical data based on variables in the study to determine how leadership practices impact teaching, learning, and overall student performance.

The Data Service Center (DSC) is a database designed to collect multiple data sources analyzing test scores, response to interventions (RTIs), and various educational reports regarding student outcomes and academic growth. The DCAS assessment program comprises of various types of data collected from schools in the State of Delaware.

DCAS cut scores were averaged out over three years in both subject areas of math and reading. The average score represents a range of score showing whether or not students met the standards. Students who scored one are classified as well below standard, students who scored two out of the 5-point system are classified as below standard, students who scored three out of

the five-point system are classified as above standard, students who scored four out of the five-point system are classified as well above standard, and students who scored five are classified as advanced.

3.2. Participants/Subjects

Participants came from the Mid-Atlantic region and from four participating middle schools. This population provided a solid foundation of grassroots research on how distributed leadership practices impact achievement scores in a middle school setting. One of the five school districts in the Mid-Atlantic Region provided the raw data utilizing the variables proposed in this study. Participants selected for this study were principals and assistant principals (N=12), deans (N=9), positive behavior support teams (N=50), instructional leadership teams (N=40), teachers (N=209) and professional learning communities (N=60).

The sample comprised four middle schools within the same school district. This approach allowed for consistency and continuity throughout the research process. Each middle school was selected on the basis of conditions of equal chance for the sample.

The sample size is 100% of the population. Creswell (2009) indicated that researchers overcome the sampling problem by choosing a smaller, more manageable number of people to participate in their research: “in quantitative research, it is believed that if samples are chosen carefully using the correct procedure; it is then possible to generalize the results to the entire research population” (p. 45).

Students are transient in public education. A sampling limitation might arise from interference with the schools’ schedules for taking the state assessments, as scheduled by the

districts. The arrangement was planned with individual schools participating in this study when it was least disruptive to students and teachers. In addition, any missing assessment data were eliminated from the study to remove limitations or minimize the chance of inflated or deflated findings.

Participants in this study represent a significant size to generalize findings and possibly transfer data to improve teaching and learning at other organizations. In quantitative research, the intent of sampling is selecting representatives of the population so the results can be generalized to among middle schools (Creswell, 2006). However, sampling limitations may occur when students' assessment scores are incomplete during the high-stakes testing period. Missing assessment data are incomplete data for this study. This limitation attempts to remove or minimize the chance of inflated or deflated findings.

3.3. Instrumentation

The Distributed Leadership Questionnaire was used as an instrument in this study. This instrument has a 37-item response that covers several leadership areas within an organization. The DLQ instrument was piloted in a middle school during the summer school in 2015. The piloted study included support staff (i.e. counselors, deans, instructional coaches, teacher aides, and newly hired teachers for the summer school program). Throughout the planning of this project, the researcher placed a great deal of importance on developing goals to meet the high statistical standards for reliability and validity of the study. Cronbach's alpha often used to measure the internal consistency and to determine the reliability of the DLQ instrument (Pyrczak, 2005). The DLQ instrument was piloted with a reliability rate of 79.9. Tabachnick et al. (2001) indicated that Cronbach's alpha is one of the most commonly used measures of internal consistency and reliability.

Dr. Monique Davis designed the questionnaire while working on her doctorate degree in Educational Leadership at George Washington University. An email to Dr. Davis was sent requesting permission to use the questionnaire for this study. Davis' (2008) dissertation topic was titled "Distributed Leadership and School Performance." The DLQ is used to collect data that measures the significance of leadership practices and student achievement scores. Teachers entered their responses on the questionnaire using the Likert scale with a 5-point rating for each response. The indicators on the Likert scale are one (strongly disagree), two (disagree), three (neutral), four (agree), and five (strongly agree).

3.4. Data Collection Procedures

Researchers received formal permission from the school district to carry out this research at the four schools. Letters and emails were used to contact and inform each of the four schools participating in the study. Once the district granted permission, principals of each school were contacted and made aware of the request to conduct a research study in their particular school. Meetings were arranged with principals or the principal's designee to clarify procedures and answer questions the principals may have regarding the study. Then, follow-up letters or emails were sent to thank them for their support and to permit the researcher to conduct the research in their school. Periodically, telephone calls were made to each principal to inquire if there was a need to address the staff, bring more questionnaires or answer questions. The preassembled packets comprised of a particular number of questionnaires matching the number of teachers and support staff for each school. Return dates were established to collect the completed questionnaires.

Once approval was received from Delaware State University's Institutional Review Board (IRB), the superintendent's office was contacted to gain approval to conduct research. In

addition, meetings were arranged with each principal to clarify procedures and answer questions regarding the study.

The quantitative data collection methods relied on a structured data collection plan and DLQ instrument that fits the seven dimensions discussed in the first chapter. As Leedy and Ormond (2001) explained, data collection plans help produce results that make it easy to summarize data, compare results, and generalize findings.

These steps accompanied the data collection and distribution process:

- Establish an identification code for each school for confidentiality.
- Contact principals to distribute the DLQ by a specific date.
- Emails and telephone calls made initially to contact school officials.
- Meetings arranged by the researcher to enable a smoother transition.
- Dates and timeline were established for completion and collection of the questionnaires.

Preassembled packets were distributed with a specific number of questionnaires to each school. Completed questionnaires were placed in a large brown envelope and sealed immediately after the collection process for the purpose of confidentiality.

- Periodically telephone calls were made to avoid any delays.
- Return dates were established for teachers to complete the questionnaire.
- Arrangements were made to collect completed Questionnaires
- Brown envelopes sealed all questionnaires from each school
- Arrangements were made to collect all completed questionnaires by a specific date.
- The researcher was available to collect the data from each school
- Questionnaires were processed, sorted for missing data, and coded for data entry.
- Collected preassembled packets were counted.

A follow-up “thank you” letter was sent to educators for their support. As the data collection process ended, the pre-analysis process included collating questionnaires by reviewing survey forms, looking for missing data, and collating forms by schools in preparation of entering the raw data into the Statistical Package Social Sciences (SPSS).

After collecting the questionnaires from each school, data were generated from the DLQ. Once data have been entered into SPSS, several statistical tests addressed the components of the study. Data collection procedures allow the study to proceed by including an analysis to predict which variables have the greatest impact on student performance, particularly on assessment scores.

To review student assessment scores, the Delaware Department of Education (DDOE) has created a range of cut scores for each grade level to determine whether or not students meet standards. Cut scores from state assessments representing students’ assessment scores (cut scores 350–400) were reviewed and averaged out over a 3-year period. As a mandate from the DDOE, students must take the statewide assessment twice per year for 3 years, in the fall and spring of each grade year.

Assessment categories are established to measure which leadership practice have the greatest impact or influence on student achievement scores. Data were gathered by the identification letter code assigned to each school (School A, School B, etc.) during the distribution process. As data are entered into SPSS, they go to each school assigned to their individual letter code. The format of the instrument comprises of a questionnaire form. Thirty-seven question responses which captured seven leadership dimensions of what leaders do to manage their building. These seven dimensions derived from the Distributed Leadership questionnaire.

This study focused on three statistical tests within the Multiple Regression Models: Pearson correlation coefficient, ANOVA, and the model summary. These tests provide a broad statistical view of how the independent variables influence the dependent variables. The results show which leadership practices are more likely to change students' achievement outcomes. The results sections of quantitative research reports also usually contain inferential statistics, which help in making inferences from the sample studied to the population from which the sample was drawn (Pyrczak, 2005).

Findings from this study can be transferrable to other middle schools. The limitation of this study is to investigate leadership practices and assessment scores that show the correlation or relationship between variables and their outcomes.

3.5. Data Analysis

The data analysis procedures vary depending on the research design. To conceptualize the data analysis is to consider data collection as occurring concurrently or sequentially with the method. Some data collection procedures change in most multiple regression methods according to the research. One way to determine data collection procedures in multiple regression is to identify ways in which the data are used in the study. This study determines what variables are measured, asked in the problem statement, and from the research question. Creswell (2006) postulated that in quantitative studies, the forms of data have been reasonably stable over the years. Investigators collect quantitative data using instruments that measure individual performance (e.g., aptitude tests) or attitudes (e.g., attitudes toward self-esteem scales).

The SPSS software consists of parametric properties used to analyze the results generated from this study. The DLQ instrument selected to collect data that measures the significance of

leadership practices and student achievement scores. The DDOE created a range of cut scores for each grade level to determine whether students have met standards. Once data have been entered SPSS, several statistical tests can address the research questions.

The Pearson Correlation test measures the correlation and the p-value to determine the significance of variables identified in the study. The Pearson Coefficient also measures either the strength or weakness of the relationship between variables. The ANOVA test measure groups (i.e. dimensions or categories) or schools by comparing their means. The Model Summary, the R Square analysis measures the variability of each predictor (IV) against the (DV) assessment scores. Variability is usually determined in percentages. Percentage indicates how much influence does the independent variable (10%, 25% or 50%) have over the dependent variables. This model compares the variability of the predictors to determine the probability and the significance levels.

3.6. Assumptions

Several assumptions emerged as this study proceeded during the investigational process. First, the assumption of reliability was questioned regarding the distributed leadership instrumentation. The DLQ instrument contains 37 responses designed to measure seven dimensions of educational leadership.

The second assumption involved the problem that the operational definitions of distributed leadership perspective aligned with educational leadership has not been established in the literature. Throughout the literature, the discussion has focused on creating an operational definition that applies to educational leadership.

The third assumption deals with data collection. How can researchers persuade participants to complete the instrument with well-thought-out responses that will enhance the reliability and validity of the instrument?

CHAPTER 4: RESULTS

4.1. Introduction

This research evaluated the relationship between the seven dimensions derived from the Distributed Leadership Questionnaire (DLQ) and student achievement scores in four middle schools in the Mid-Atlantic Region. The study measured seven dimensions of leadership practices or independent variables that include school organization, school vision, school culture, instructional program, instructional leadership, teacher leadership, and principal leadership (Elmore, 2002). Student assessment scores comprised of Math and Reading scores which served as the dependent variables.

4.2. Descriptive Statistics

Table 1: Return Rate of DLQ by Participants

The return rate of Distributed Leadership Questionnaire			
School	# of Staff	#Returns	<i>Return%</i>
A	74	64	86%
B	48	42	88%
C	54	53	98%
D	53	51	96%
Total	229	210	92%

Table 1 shows out of the two hundred and twenty-nine Distributed Leadership Questionnaires that were circulated to participants in the four schools, two hundred and ten questionnaires were returned representing a return rate of 92%. The sample for this study included students' assessment scores from four middle schools and teachers (N=229). Other participants included in the aforementioned count are principals, and assistant principals (N=12); deans (N=9); positive behavior support teams (N=50); instructional leadership team (N=40), and professional learning communities (N=60) participated in the study.

Two hundred and twenty-nine questionnaires were distributed among the four middle schools. Each school was assigned a numerical code and pulled from a pool of twenty-seven schools in the Mid-Atlantic Region. Completing the random selection process, the enrollment of students averaged eight hundred and fifty-two students. There were no middle schools with enrollment of less than five hundred students in this study.

A Cronbach Alpha test is designed to determine internal consistency and the reliability of the instrument. If any item is less than 0.30, the response questions should be considered for removal. The Cronbach alpha coefficient for the leadership roles and organizational structure demonstrated strong reliability at 0.84. The Cronbach alpha coefficients for the other dimensions showed high-moderate strength, ranging from 0.78 to 0.79. According to Gordon (2005), the reliability for the original DLQ reflected the level of internal consistency with the Cronbach Alpha Coefficients. The internal consistency of Shared Vision is 0.86. The internal consistency for School Mission and School Culture is 0.80; the internal consistency of learning goals & objectives is 0.89.

The internal consistency of the learning environment is 0.92; the internal consistency of the shared responsibility and decision-making dimension is 0.84 and finally, the internal consistency of the leadership practices and instructional activities is 0.94. This analysis further validated Gordon’s (2005) finding that the instrument is reliable and includes the item-total correlation to provide insight into the degree “each item correlates with the total score” (Pallant,2005, p. 45).

The Delaware Department of Education (DDOE) and the Delaware Data Service Center provided the student achievement data. These organizations posted the passing rate for reading and math of each middle school using the state’s assessment system and provided the cut scores for each subject in the assessment system. Individual student scores are not available; only subject/grade level data are supplied by the DDOE. Therefore, grade-level scores are provided and included in this study as a variable to determine relationships and the correlation levels. The DDOE posted the cut score rates in grades 6th, 7th, and 8th-grade in the math and reading content areas for three years: 2013, 2014 and 2015.

Table 2: Gender Statistics for Each School

School	Female		Male		SD	Mean	Total
	N	%	N	%			
A	40	54.1	34	45.9	1.58	531	74
B	25	50.9	23	49.1	1.41	498	48
C	29	53.7	25	46.3	1.49	504	54
D	29	51	24	49	1.64	709	53
Total	123		106				229

School A statistical data indicated that gender (N=74) showed females (N=40) or 54.1% and males (N=34) or 45.9% responded to the question items on the questionnaire. The mean (M=531) and the standard deviation (SD=1.58) were obtained from the distribution. School B's data (N=48) reflect that females (N=25) or 50.9% and males (N=23) or 49.1%, represented their instructional staff. The statistics indicated the mean (M= 498) and the standard deviation (SD=1.41). The data for School C included females (N=29) or 53.7% males (N=25) or 46.3% and teachers' response to the questionnaire (N=54). The mean (M=504) and the standard deviation (1.49) follow the distribution. Data for School D include descriptive data that provide a statistical view of gender. The demographic make up begins with the (N=53) representing females (N=29) or 51% and male (N=24) or 49%. The data showed the mean (M=709) and the standard deviation (SD=1.64).

Table 3: Ethnicity

Schools	Ethnicity									
	N	Asian %	N	Black %	N	Hispanic %	N	White %	N	
A	6	8%	26	35.1%	22	29.7	20	27.2%	74	
B	7	14.6	21	43.7	7	14.6	13	27.1	48	
C	15	27.8	18	33.4	9	16.7	12	22.1	54	
D	3	5.7	27	50.9	5	9.5	18	33.9	53	

School A's ethnicity data included (N=54) staff members: Asians (6) or 8%, Blacks (N=26) or 35.1%, Hispanics (N=22) or 29.7%, and Whites (N=20) or 27.2% of the school. School B's ethnicity data included (N=48) staff members: Asians (N=7) or 14.6%, Blacks (N=21) or 43.7%, Hispanics (N=7) or 14.6%, and Whites (N=13) or 27.1%. School C's ethnicity data included (N=54) staff members: Asians (N=15) or 27.8%, Blacks (N=18) or 33.4%, Hispanics (N=9) or 16.7%, and Whites (N=12) or 22.1%. School D's ethnicity data comprise of (N=53) staff members: Asians (N=3) or 5.7%, Blacks (N=27) or 50.9%, Hispanics (N=5) or 9.5%, and Whites (N=18) or 33.9%.

Table 4: Leadership Roles

Comparison of Leadership Roles									
School	Principals		Dept. Chairs		Tchr. Leadership		Leadership Team		Frequency
A	N=4	5.4%	N=12	16.6%	N=43	58%	N=15	20%	N=74
B	N=3	6.4%	N=14	29.2%	N=17	35.2%	N=14	29.2%	N=48
C	N=2	3.7%	N=11	20.4%	N=29	53.7%	N=12	22.2%	N=54
D	N=7	13.2%	N=9	16.9%	N=6	11.5%	N=31	58.4%	N=53

Teachers' leadership role in School A reflects a large percentage (N=43), or 58% of the teachers, are actively participating in some leadership capacity in their school. In addition, data also showed that department chairs (N=12), or 16.6% and the leadership team (N=15), or 20% building leadership capacity, are involved in some leadership capacity. As a result, these three groups; department chair, teacher leadership and the leadership team accounted for 94.6% of the leadership structure in school A.

School B's statistical data showed leadership roles including department chairs (N=14) or 29.2% the teacher leadership group (N=17), or 35.2% and the leadership team (N=14) or 29.2%, representing 93.8% of the leadership structure. There are Principals (N=3), or 7.2% of the administrative staff are part of the leadership structure in school B.

According to the staff responses in school C, the department chairs (N=11) or 20.4%, teacher leadership (N=29) or 53.7% and the leadership team (N=12) or 22.2% combined make up 86.3% of the leadership structure. The leadership team alone represents (N=29) or 53.7% of the leadership structure, whereas the principal leadership structure accounts for (N=2) or 3.7% active principals are part of the leadership structure.

The data for School D indicate that the department chairs (N=9) or 16.9% and principals (N=7) or 13.2% make up 30.1% of the leadership structure, whereas teacher leadership (N=6) or 11.5% and the leadership team (N=31) or 58.4%, make up approximately 69.9 % of the leadership structure in School D.

Table 5: Teaching Experience

Schools	Number of Years in Education									
	N	1-5 yrs. %	N	6-10yr %	N	11-15 %	N	16-20%	N	21-25%
A	8	14.8	6	11.3	13	24.0	14	25.9	13	24.0
B	4	8.5	3	6.2	9	18.7	15	31.2	17	35.4
C	8	14.8	6	11.1	5	9.3	16	29.6	19	35.2
D	2	3.7	31	57.4	20	37.0	1	1.9	n/a	

School A's teaching experience data are comprised of five categories of years of experience among teachers in Table 5. Results showed the following: one-to-five years of experience (N=8) or 14.8%, six-to-ten years of experience (N=6) or 11.3%, eleven-to-fifteen years of experience (N=13) or 24%, the sixteen-to-twenty years of experience (N=14) or 25.9% and the twenty-one to twenty-five years of experience (N=13) or 24%. Data revealed that teachers with more teaching experience are in the eleven to fifteen (N=13) or 24% sixteen to twenty years of experience (N=14) or 25.9% and the twenty to twenty-five years of experience (N=13) or 24% years of experience. Seventy-five percent of the staff have accumulated more than eleven years of teaching experience in School A.

The statistical analysis for School B indicates 33.4% of the staff accumulated experience in either one to five years of experience (N=4) or 8.5%, six to ten years of experience (N=3) or 6.2% and the eleven to fifteen years of experience (N=9) or 18.7%. The eleven to fifteen years of experience had (N=9) or 18.7% teachers of the staff with moderate teaching experience. The results of the statistical analysis show School B has a few teachers with teaching experience in the one to five year of experience and the six to ten years of experience (N=7) categories.

School C's staff have of its faculty combined in the sixteen to twenty and the twenty-one to twenty-five years of experience, whereas teachers (N=16) or 29.6% and (N=19) or (35.2%) of years of experience. School C identified as the second largest group of teachers with teaching experience. School B showed 66.6% of its staff with more teaching experience. As this analysis review indicates in Table 5, data suggest years of experience including one to five years' teaching experience (N=8 or 14.8%), six to ten

years' teaching experience (N=6) or 11.1%), and eleven to fifteen years' teaching experience (N=5) or 9.3%). 35.2% of teachers with moderate teaching experience are in School C.

School D teaching experience data revealed the majority of the teaching staff were found in the six to ten years' teaching experience (N=31) or (57.4%) and the eleven to fifteen years of experience (N=20) or (37.0%). Teachers' years of teaching experience make up 94.4% of the teaching staff. These statistical data provided the number of years of teaching experience of educators who taught in the four middle schools.

Table 6: Percentages of Staff with Advanced Degrees

Schools	Highest Degree Earned						Frequency
	Master		Master + 45		ED. D		
	N	%	N	%	N	%	
A	39	52.7	31	41.8	4	5.5	74
B	20	41.7	18	37.5	10	20.8	48
C	19	34.2	23	42.6	12	22.2	54
D	36	67.9	2	3.8	15	28.3	53

Table 6 shows the percentage of staff from each school who have advanced degrees and are well qualified as teachers. School A (N=39) or 52.7%, School B has (N=20), or 41.7% and School C has (N= 19) or 34.2% of its staff with master degrees. Under the Masters Plus 45 category, School A has staff with (N=31) or 41.8%, School B has (N=18), or 37.5% and School C staff have (N=23), or 42.6% of their staff have advanced degrees. In

addition, School D staff have (N=15) or 28.3% of its staff with earned doctorate degrees in education.

4.3. Data Analysis and Results

The goal of this study was to measure quantitative data collected from four middle schools to determine if distributed leadership practices impact student achievement. The school district is in the Atlantic Region of this county. Analyzing these data, the researcher examined the relationships, association, and variances to determine the impact leadership activities, practices, and administrative functions have on math and reading scores as the dependent variables.

Dimension 1: School Organization, Dimension 2: Vision, Dimension 3: Culture, Dimension 4: Instructional Leadership, Dimension 5: Using Data to make an inform decision, Dimension 6: Teacher Leadership and Dimension 7: Principal Leadership aligned with seven research questions and their hypotheses. School administration has an active role in encouraging the staff to participate in the decision-making process.

4.3.1. School Organization

Research Question #1: To what extent does school organization affect student achievement scores? Hypothesis RH#1: Schools with established organizational rules have a much greater positive impact on student achievement than schools not having established rules in place. There is a statistically significant difference in student achievement based on the correlational data analysis below for this question with middle schools having established organizational rules. The hypothesis statement is accepted.

Table 7: Correlation Coefficient & Reading Scores

School	(r)	Beta	t-Score	Mean	Sig.	SD
School A						
6 th	.792	18.97	65.86	779.52	.697<p=.05	6.87
7 th	.790	11.56	29.15	787.04	.665<p=.05	12.59
8 th	.802	13.65	28.85	811.70	.798<p=.05	6.69
Average Score	.795			792.75	.720<p=.05	8.71
School B						
6 th	.791	15.65	36.70	784.81	.795<p=.05	7.03
7 th	.804	12.75	80.95	803.14	.698<p=.05	9.86
8 th	.817	13.67	60.24	819.12	.815<p=.05	6.75
Average Score	.801			802.35	.745<p=.05	7.88
School C						
6 th	.790	35.65	61.75	790.10	.789<p=.05	4.75
7 th	.808	19.45	7.71	807.79	.756<p=.05	9.35
8 th	.820	12.50	28.76	816.90	.690<p=.05	7.86
Average Score	.826			804.93	.753<p=.05	7.32
School D						
6 th	.810	22.45	60.55	807.84	.765<p=.05	16.5
7 th	.829	9.75	32.60	821.22	.698<p=.05	9.45
8 th	.838	19.85	58.87	795.85	.798<p=.05	4.59
Average Score	.826			799.55	.753<p=.05	10.10

In Table 7, the Pearson's Correlation Coefficient determines the Pearson correlation scores, the p value compared to the alpha ($p=.05$), the school's average mean scores, and the average standard deviation using 6th, 7th and 8th grades assessment data in reading (DV). The results are:

School A: $r (.795)$, $.720 < p = .05$, (M=792.75 SD= 8.71);

School B: $r (.801)$, $.745 < p = .05$ (M=802.35 SD 7.88);

School C: $r (.826)$, $.745 < p = .05$, (M=804.93 SD= 7.32);

School D: $r (.826)$, $.753 < p = .05$, (M=799.55 SD=10.13).

Data collected showed there was a correlation when analyzing the (r) scores in each grade. The significance level and the direction of the relationship was positive and strong. Data support a statistically significant relationship between School Organization (I.V) and reading scores (DV). In addition, the p values of each school indicate there is a significant positive correlation among each grade level. Gasson & Elrod stated, "This study denotes consistent evidence of the relationship between measures of the school organizational context, as well as emerging evidence of a direct relationship between school contexts and student achievement" (2009, p.47).

Table 8: Correlation: School Organization & Math Scores

School A	(r)	Beta	t-Score	Mean	Sig.	SD
6 th	.807	8.96	24.56	777.87	.635<p=.05	8.17
7 th	.735	17.50	25.15	793.75	.875<p=.05	10.50
8 th	.819	9.75	40.40	818.48	.785=p<.05	6.65
Average Score	.753			796.70	.767<p=.05	8.44
School B	(r)	Beta	t-Score	Mean	Sig.	SD
6 th	.787	6.96	14.18	785.91	.596<p=.05	5.26
7 th	.794	7.95	64.58	804.50	.756<p=.05	17.05
8 th	.785	10.55	88.65	816.35	.694<p=.05	3.77
Average Score	.785			802.25	.682<p=.05	8.69
School C	(r)	Beta	t-Score	Mean	Sig.	SD
6 th	.790	8.90	20.89	786.42	.586<p=.05	5.66
7 th	.794	10.75	25.89	804.56	.765<p=.05	8.87
8 th	.817	8.75	74.05	822.90	.589<p=.05	7.24
Average Score	.867			804.62	.647=p<.05	7.25
School D	(r)	Beta	t-Score	Mean	Sig.	SD
6 th	.797	9.65	71.05	786.70	.652<p=.05	5.45
7 th	.834	4.55	23.41	807.84	.675<p=.05	6.45
8 th	.838	9.67	58.87	820.28	.799<p=.05	8.95
Average Score	.890			804.94	.708<p=.05	6.95

In Table 8, the School Organization (IV) and Math Assessment (DV) were analyzed to determine the correlational scores (r), the school's average scores, mean and the standard deviation using 6th, 7th and 8th grades assessment scores in math.

The results are: School A: $r = (753.71)$, $.767 = p < .05$, (M=796.70 SD= 8.44); School B: $r = (785.97)$, $.682 = p < .05$ (M=802.25 SD 8.69); School C: $r = (867.10)$, $.647 = p < .05$, (M=804.62 SD= 7.25); School D: $r = (890.47)$, $.708 = p < .05$, (M=804.94 SD=6.95).

Data collected and analyzed showed there was a correlation with the (r) scores at each grade level. The significance level and the direction of the strength are positive and strong. Data indicate there is a statistically significant relationship between School Organization and math scores. In addition, the p values of each school indicate there is a positive statistical relationship between variables.

Leithwood, Mascall, & Strauss (2008) wrote, “We find that four distinct dimensions of middle schools’ organizational contexts emerge from teachers’ responses to the NYC School Survey: The Leadership & Professional Development, High Academic Expectations for Students, Teacher Relationships, Collaboration, and School Safety & Order” (p.64).

Table 9: ANOVA Analysis: School Organization Reading Scores

School A	Grade	Sum of Sq.	Df	F-Test	Mean	Sig.
Regression	8 th	251.10	6	68.75	813.79	.608<p=.05
Residuals		2695.50	68			
Total		2946.60	74			
School B	8th	Sum of Sq.	Df	F-Test	Mean	Sig.
Regression		59.05	6	65.90	802.35	.682<p=.05
Residuals		611.92	42			
Total		670.97	48			
School C	8 th	Sum of Sq.	Df	F-Test	Mean	Sig.
Regression		82.86	6	54.44	803.70	.773<p=.05
Residuals		687.65	48			
Total		770.51	54			
School D	8 th	Sum of Sq.	Df	F-test	Mean	Sig.
Regression		52.23	6	47.64	801.70	.756<p=.05
Residuals		709.68	47			
Total		761.91	53			

The ANOVA measures the group means' differences. Group means from the Eighth-grade reading scores provided the data to analyze each middle school's group mean. Data indicate the group means of each school are not equal. According to the ANOVA results, there is a significant difference between group means from each school. Using the ANOVA to test the hypothesis statement, the group means must be different, not equal and not equal to zero.

Table 9 shows the ANOVA data which include the mean scores and the p-value tested the hypothesis statement in research question I. To what extent does school organization affect student achievement scores?

Hypothesis RH#1: Schools with established organizational rules have a much greater positive impact on student achievement than schools not having established rules in place. There is a statistically significant impact on student achievement based on the ANOVA data regarding middle schools having established organizational rules. The hypothesis statement is accepted. To determine the group means, an independent sample test was conducted to analyze twenty-four datasets with ten assessment scores in each data set. The group means analysis determines if the group means scores were either different, not equal to the means or equal to zero. There is a statistically significant relationship between school organization and reading assessment scores. The results are: School A: $F(6, 68) = 68.75, .608 < p = .05, (M = 813.79)$; School B: $F(6, 42) = .834, .682 < p = .05, (M = 802.35)$; School C: $F(6, 48) = .944, .773 < p = .05, (M = 802.70)$, School D: $F(6, 47) = .855, .756 < p = .05, (M = 801.70)$.

Table 10: Multiple Regression: School Organization & Reading Scores

School	R	R Square	Adj. R Square	Std. Error.	F Change	Sig.
School A	.297	.183	.045	3.96	68.75	.682 < p = .05
School B	.242	.259	.054	3.87	65.90	.758 < p = .05
School C	.358	.128	.017	3.78	54.45	.647 < p = .05
School D	.296	.288	-.031	3.88	47.64	.623 < p = .05

Multiple regression tests conducted with School Organization (IV) and reading scores (DV) were used to determine the variances. Multiple regression analysis shows that the variance is moderately high. Data suggest there is a statistically significant variance using the independent variable to influence the dependent variables. The results are: School A: $F(6, 68) = 68.75$, $.682 < p < .05$; .183 or 18.3% Variance; School B: $F(6, 42) = 65.90$, $.758 < p < .05$; .259 or 25.9% Variance; School C: $F(6, 48) = 54.44$, $.647 < p < .05$; .128 or 12.8% Variance; School D: $F(6, 47) = 47.64$, $.623 < p < .05$, .288 or 28.8% variance.

4.3.2. School Vision:

Research Question#2: To what extent does articulated vision influence students' achievement scores? RH#2: Articulating a vision has a significant impact on student achievement scores. Based on the analysis, there is a significant impact on student achievement scores when the principal and teachers articulate a vision for student learning. The hypothesis statement is accepted.

Table 11: Correlation: School Vision & Reading Scores

School	(r)	Beta	t-Score	Mean	Sig.	SD
School A						
6 th	.782	.154	43.76	777.87	.216<p=.05	4.75
7 th	.659	.175	49.51	784.50	.669<p=.05	3.95
8 th	.819	.211	75.30	815.35	.695<p=.05	5.91
Average score	.754			792.57	.626<p=.05	4.87
School B	(r)	Beta	t-Score	Mean	Sig.	SD
6 th	.787	-.015	153.27	784.81	.927<p=.05	7.03
7 th	.822	-.188	93.94	803.14	.246<p=.05	12.38
8 th	.819	.139	164.95	819.12	.415<p=.05	6.62
Average score	.808			802.35	.728<p=.05	8.67
School C	(r)	Beta	t-Score	Mean	Sig.	SD
6 th	.793	.037	200.89	780.68	.824<p=.05	6.50
7 th	.818	-.115	107.76	800.03	.695<p=.05	12.55
8 th	.827	-.085	210.07	820.46	.599<p=.05	6.73
Average score	.813			800.39	.680<p=.05	8.59
School D	(r)	Beta	t-Score	Mean	Sig.	SD
6 th	.772	-.016	76.40	785.60	.921<p=.05	6.54
7 th	.808	.325	45.25	812.40	.603<p=.05	5.97
8 th	.805	.176	79.21	820.28	.772<p=.05	2.15
Average score	.795			806.09	.732<p=.05	4.88

In Table 11, the Pearson's Correlation Coefficient results determine the school's cumulative average scores by averaging the mean of each grade (6th, 7th, and 8th) in reading. Data indicate there is a relationship between School Vision and reading scores and the direction and strength of the correlation are positive. The Pearson coefficient correlation shows each school has a high statistically significant correlation between School Vision and reading scores. The relationship between teachers' and administrators' vision is important. Administrators' vision tends to encompass the whole system; their vision is an organizational vision. Teachers' visions appear to focus primarily on the individual or personal actions for school change (Fullan, 1992). The results are:

School A: $r (.753)$, $.526 < p = .05$, (M=792.57 SD=4.87)

School B: $r (.808)$, $.528 < p = .05$ (M=802.35 SD= 8.67)

School C: $r (.813)$, $.680 < p = .05$, (M=800.39 SD=8.59)

School D: $r (.759)$, $.532 < p = .05$, (M=806.09 SD=4.88).

Table 12: Correlation: School Vision & Math Scores

School A	(r)	Beta	t-Score	Mean	Sig.	SD
6 th	.808	.154	43.76	964.70	.739<p=.05	4.75
7 th	.659	.175	49.51	793.07	.695<p=.05	3.95
8 th	.835	.211	75.30	818.48	.582<p=.05	5.91
Average score	.814			792.57	.592<p=.05	5.17
School B	(r)	Beta	t-Score	Mean	Sig.	SD
6 th	.791	-.015	153.27	785.91	.628<p=.05	5.26
7 th	.816	-.188	93.94	816.35	.906<p=.05	3.77
8 th	.778	.139	164.95	804.56	.756<p=.05	17.05
Average score	.808			815.05	.698<p=.05	8.69
School C	(r)	Beta	t-Score	Mean	Sig.	SD
6 th	.793	.037	200.89	780.68	.696<p=.05	6.50
7 th	.795	-.115	107.76	800.03	.747<p=.05	12.55
8 th	.816	-.085	210.07	820.46	.753<p=.05	6.73
Average score	.801			804.88	.732<p=.05	8.59
School D	(r)	Beta	t-Score	Mean	Sig.	SD
6 th	.776	-.016	76.40	785.60	.921<p=.05	16.76
7 th	.803	.325	45.25	812.40	.590<p=.05	9.45
8 th	.813	.176	79.21	820.28	.672<p=.05	6.70
Average score	.831			814.78	.727<p=.05	10.97

In Table 12, there is a statistically significant relationship between school vision and math scores. When using the ANOVA, ten sample assessment scores from each grade level and each school for math and reading were used to determine the group means. The group means scores for each school were not equal to zero, and the statistical test shows that the p-value is higher than the significance level or alpha ($p=.05$). Therefore, the hypothesis is accepted indicating when teachers and principals articulate a vision, their efforts have a statistically

significant impact on student achievement based on the data in this study. A clear vision offers a core of meaning that unambiguously expresses what it means to work in a particular school and provides a shared standard by which teachers can gauge their own efforts (Smith & Piele, 1997). Pearson Correlation Coefficient determines the correlation scores, the school's average score, mean and the standard deviation using 6th, 7th and 8th grades assessment scores in reading. The results are: School A: $r = (.814)$, $.526 < p = .05$, (M=792.57 SD=5.17); School B: $r = (.808)$, $.698 < p = .05$ (M=815.05 SD=8.69); School C: $r = (.808)$, $.732 < p = .05$, (M= 804.88 SD=8.59); School D: $r = (.831)$, $.727 = p < .05$, (M=814.78 SD=10.97).

Table 13: ANOVA: School Vision & Math Scores

School A	Grade	Sum of Sq.	Df	F-Test	Mean	Sig.
Regression	7th	84.51	6	.250	774.81	.625 < p = .05
Residuals		1223.08	68			
Total		1307.59	74			
School B	7th	Sum of Sq.	Df	F-Test	Mean	Sig.
Regression		59.50	6	.361	743.24	.650 < p = .05
Residuals		1311.75	42			
Total		1371.25	48			
School C	7 th	Sum of Sq.	Df	F-Test	Mean	Sig.
Regression		125.43	6	.156	719.32	.599 < p = .05
Residuals		1516.40	48			
Total		1641.83	54			
School D	7 th	Sum of Sq.	Df	F-test	Mean	Sig.
Regression		157.51	6	.267	621.23	.695 < p = .05
Residuals		1451.50	47			
Total		1609.01	53			

In Table 13, there is a significant relationship between school vision (IV) and math scores (DV). Group means School A mean 774.81; School B mean 743.24; School C mean 719.32 and School D mean 621.23. Group means for each of the schools appear to be different and do not equal to zero. Six sample assessment scores from each grade level and each school for math and reading were used to determine if the group means were not equal and did not equal zero. The results are School A: $F(6, 68) = .250, .625 < p = .05$; School B: $F(6, 42) = .361, .650 < p = .05$; School C: $F(6, 48) = .156, .599 < p = .05$; School D: $F(6, 47) = .267, .695 < p = .05$.

Table 14: Multiple Regression: Vision: School Vision

School	R	R Square	Adj. R Square	Std. Error.	F Change	Sig.
School A	.315	.188	-.058	4.96	.155	.628 < p = .05
School B	.420	.119	.098	3.70	.192	.558 < p = .05
School C	.382	.118	.156	3.08	.159	.677 < p = .05
School D	.269	.120	-.131	3.96	.136	.695 < p = .05

Multiple regression models are comprised of the School Vision (IV) and Math assessment scores (DV). The variance of the independent variable indicates how much influence it has over the dependent variable. The difference of each school are: School A: .188 or 18.8%, School B is .119 or 11.9%, School C is .118 or 11.8%, School D is .120 or 12%.

However, the F statistics show there is a statistically significance variance analyzing School Vision and Math Assessment scores. The hypothesis test is accepted, indicating that when teachers and principals articulate a vision, their efforts have a significant impact on student achievement based on the data in this study. The results are:

School A: $R=.315$, $F(6, 68) = .155$, $.628 < p = .05$

School B: $R=.420$, $F(6, 42) = .192$, $.558 < p = .05$

School C: $R= .328$, $F(6, 48) = .159$, $.677 < p = .05$

School D: $R= .269$, $F(6, 47) = .136$, $.695 < p = .05$

Table 15: Correlation: School Culture and Reading Scores

School A	(r)	Beta	t-Score	Mean	Sig.	SD
7 th	.795	31.65	69.80	803.78	.545 < p = .05	4.28
8 th	.819	19.45	65.75	795.75	.569 < p = .05	3.65
Average Scores	.784			796.92	.551	4.46
School B	(r)	Beta	t-Score	Mean	Sig.	SD
6 th	.784	16.80	143.65	784.81	.650 < p = .05	7.03
7 th	.809	12.26	88.31	803.14	.599 < p = .05	12.35
8 th	.819	10.92	55.76	819.24	.670 < p = .05	6.65
Average Scores	.804			802.39	.639 < p = .05	8.67
School C	(r)	Beta	t-Score	Mean	Sig.	SD
6 th	.792	9.65	208.52	674.68	.737 < p = .05	6.50
7 th	.809	8.14	15.45	789.54	.654 < p = .05	12.75
8 th	.817	7.67	20.45	816.90	.780 < p = .05	3.81
Average Scores	.806			737.86	.723 < p = .05	7.68
School D	(r)	Beta	t-Score	Mean	Sig.	SD
6 th	.794	8.90	43.63	614.25	.755 < p = .05	6.78
7 th	.831	5.75	24.78	743.80	.696 < p = .05	7.80
8 th	.852	6.78	45.63	865.55	.854 < p = .05	8.50
Average Scores	.671			727.86	.765 < p = .05	7.66

4.3.3. School Culture

Research Question #3: To what extent does creating an effective school culture affect student achievement scores?

RH#3: Effective school cultures significantly influence student achievement scores.

Based on the analysis, there is a statistically significant difference that an effective school culture influences students' achievement scores in middle schools. The hypothesis statement is accepted.

Multiple regression models are comprised of the School Vision (IV) and Math assessment scores (DV). The variance of the independent variable indicates how much influence it has over the dependent variable. The difference of each school are: School A: .188 or 18.8%, School B is .119 or 11.9%, School C is .118 or 11.8%, School D is .120 or 12%.

There is substantial evidence in the literature to suggest that a school principal must first understand the school's culture before implementing change (Leithwood et al., 2008). Data collected on School Culture (IV) and reading assessment scores (DV) among four middle schools were analyzed to determine how effective school culture may affect student achievement scores. Table 15 shows the average scores for the correlation, mean score, the p-value, and the standard deviation to determine the relationship between School Culture (IV) and reading assessment scores (DV). Data suggest that there is a statistically significant difference between schools having an effective school culture and a positive impact on reading assessment scores. The results are School A: $r (.784) = .551, p=.05$ (M= 796.92 SD=4.46) one-tailed; School B: $r (.804) = .639, p=.05$ (M= 802.39 SD=8.67) one-tailed; School C: $r (.806) = .723, p=.05$ (M= 773.86 SD=7.68) one-tailed; School D: $r (.761) = .765, p=.05$ (M= 727.86 SD=7.66) one-tailed;

Multiple regression models are comprised of the School Vision (IV) and Math assessment scores (DV). The variance of the independent variable indicates how much influence it has over the dependent variable. The difference of each school are: School A: .188 or 18.8%, School B is .119 or 11.9%, School C is .118 or 11.8%, School D is .120 or 12%.

There is substantial evidence in the literature to suggest that a school principal must first understand the school's culture before implementing change (Leithwood et al., 2008). Data collected on School Culture (IV) and reading assessment scores (DV) among four middle schools were analyzed to determine how effective school culture may affect student achievement scores. Table 15 shows the average scores for the correlation, mean score, the p-value, and the standard deviation to determine the relationship between School Culture (IV) and reading assessment scores (DV). Data suggest that there is a statistically significant difference between schools having an effective school culture and a positive impact on reading assessment scores.

The results are:

School A: $r(.784) = .551, p=.05 (M= 796.92 SD=4.46)$ one-tailed;

School B: $r(.804) = .639, p=.05 (M= 802.39 SD=8.67)$ one-tailed;

School C: $r(.806) = .723, p=.05 (M= 773.86 SD=7.68)$ one-tailed;

School D: $r(.761) = .765, p=.05 (M= 727.86 SD=7.66)$ one-tailed;

Table 16: Pearson Correlation: School Culture & Math Scores

School A	(r)	Beta	T. Score	Mean	Sig.	SD
6 th	.815	12.50	69.59	758.45	.675<p=.05	4.59
7 th	.795	15.25	60.50	796.35	.785<p=.05	3.95
8 th	.810	15.95	79.53	793.39	.635<p=.05	5.61
Average Score	.807			782.73	.698<p=.05	4.55
School B	(r)	Beta	t-Score	Mean	Sig.	SD
6 th	.781	7.89	67.89	785.91	.755<p=.05	5.30
7 th	.788	8.95	50.75	804.56	.785<p=.05	6.75
8 th	.814	4.65	39.80	816.35	.759<p=.05	7.90
Average Score	.794			802.27	.766<p=.05	6.65
School C	(r)	Beta	t-Score	Mean	Sig.	SD
6 th	.788	8.45	25.85	786.42	.797<p=.05	5.66
7 th	.800	8.50	88.03	807.79	.697<p=.05	10.65
Average Score	.797			799.30	.759<p=.05	8.58
School D	(r)	Beta	t-Score	Mean	Sig.	SD
6 th	.813	-3.55	53.84	786.20	.659<p=.05	5.48
7 th	.878	2.50	19.62	807.84	.677<p=.05	7.45
8 th	.815	6.55	73.99	816.96	.659<p=.05	6.75
Average Score	.835			803.66	.665<p=.05	6.56

From correlation Table 16: School Culture (IV) and math assessment scores (DV) based on the data, it appears that the Pearson correlation coefficient (r) score indicates a strong relationship between School Culture and math assessment scores. Each school shows an averaged Pearson correlational score, mean score, p-value and the standard deviation providing a complete view of school performance. School culture and math assessment scores from each middle school were analyzed and determined which variables are effective.

In conclusion, there is a strong relationship when calculating the Pearson correlation coefficient scores. The results are:

School A: $r (.807) = .698, p=.05$ (M= 782.73 SD=4.55)

School B: $r (.794) = .766, p=.05$ (M= 802.37 SD=6.65)

School C: $r (.797) = .759, p=.05$ (M= 799.30 SD=8.58)

School D: $r (.835), .665=p=.05, (M=803.66 SD=6.56).$

Table 17: ANOVA: School Culture and Math Scores

School A	Grade	Sum of Sq.	Df	F-Test	Mean	Sig.
Regression	8 th	251.10	6	.962	784.81	.608<p=.05
Residuals		2695.50	68			
Total		2946.60	74			
School B	8th	Sum of Sq.	Df	F-Test	Mean	Sig.
Regression		59.05	6	.659	803.14	.582<p=.05
Residuals		611.92	42			
Total		670.97	48			
School C	8 th	The sum of Sq.	Df	F-Test	Mean	Sig.
Regression		82.86	6	.926	719.12	.573<p=.05
Residuals		687.65	48			
Total		770.51	54			
School D	8 th	The sum of Sq.	Df	F-test	Mean.	Sig.
Regression		52.23	6	.664	769.85	.564<p=.05
Residuals		709.68	47			
Total		762.91	53			

In the ANOVA, the means of each school were analyzed to determine if the group means were equal to zero. The F statistic and the p-value were used to determine the association and compared the alpha level with the significance. The statistical significance indicates the means from each school are different and not equal. The results are: School A: $F(6, 68) = .962, .608 = p < .05$; School B: $F(6, 42) = .659, .582 = p < .05$; School C: $F(6, 48) = .926, .573 = p < .05$; School D: $F(6, 47) = .667, .564 = p < .05$.

Table 18: Multiple Regression: School Culture and Math Scores

School	R	R Square	Adj. R Square	Std. Error. of the Est.	F Change	Sig.
School A	.697	.089	-.045	3.96	.659	.682 < p = .05
School B	.542	.059	.054	3.87	.522	.758 < p = .05
School C	.358	.128	.017	3.78	.315	.347 < p = .05
School D	.456	.088	-.031	3.88	.736	.623 < p = .05

Multiple regression analysis in three of the middle schools' data appears strong. However, School C's data are moderately weak because the p value (.347 = p < .05) is less than the Alpha. However, the data suggest that School Culture (IV) shows a significant difference between math assessment scores (DV) using the variance to determine how much influence the independent variable affected the dependent variable. The results are:

School A: $R=.697$, $F(6, 74) = .659$, $.682$, $p=.05$, $R\text{ sq.} = .089$ or 8.9% variance:

School B: $R=.542$, $F(6, 48) = .522$, $.758$, $p=.05$, $R\text{ sq.} = .059$ or 5.9% variance;

School C: $R=.358$, $F(6, 54) = .315$, $.347$, $p=.05$, $R\text{ sq.} = .128$ or 12.8 % variance:

School D $R^2=.456$, $F(6, 53) = .736$, $.623$, $p=.05$, $R\text{ sq.} = .088$ or 8.8% variance.

Table 19: Correlation: Instructional Leadership & Reading Scores

School A	(r)	Beta	t-Score	Mean	Sig.	SD
6 th	.783	11.79	65.19	779.52	.596<p=.05	3.75
7 th	.798	8.04	54.72	782.04	.895<p=.05	4.76
8 th	.831	9.65	76.15	835.48	.759<p=.05	5.75
Average Score	.804			799.00	.750<p=.05	4.75
School B	(r)	Beta	t-Score	Mean	Sig.	SD
6 th	.782	5.99	18.88	789.81	.920<p=.05	7.86
7 th	.817	20.65	36.89	803.14	.570<p=.05	9.56
8 th	.820	14.75	44.10	819.12	.765<p=.05	7.98
Average Score	.739			804.02	.751<p=.05	8.46
School C	(r)	Beta	t-Score	Mean	Sig.	SD
6 th	.789	7.96	23.61	784.68	.651<p=.05	6.50
7 th	.803	8.75	14.24	800.03	.628<p=.05	12.50
8 th	.825	10.50	20.91	820.46	.757<p=.05	6.73
Average Score	.806			801.72	.678<p=.05	8.57
School D	(r)	Beta	t-Score	Mean	Sig.	SD
6 th	.790	12.59	65.75	784.60	.698<p=.05	8.54
7 th	.782	10.65	47.34	800.22	.789<p=.05	7.75
8 th	.811	8.95	37.65	820.28	.675<p=.05	7.86
Average Score	.794			801.70	.570<p=.05	8.05

4.3.4. Instructional Leadership

Research Question#4: To what extent does instructional leadership influence student achievement scores? RH#4: There is significant influence on achievement when effective instructional leadership practices are used in middle schools. There is statistically significant level of influence when effective instructional leadership practices are applied in middle schools. The hypothesis is accepted.

Table 20: Correlation: Instructional Leadership & Math Scores

School A	(r)	Beta	t-Score	Mean	Sig.	SD
6 th	.815	6.65	33.98	785.90	.589<p=.05	7.45
7 th	.786	15.89	49.93	793.60	.598<p=.05	4.20
8 th	.804	9.65	78.15	834.10	.675<p=.05	5.05
Ave. Score	.802			804.53	.620<p=.05	5.56
School B	(r)	Beta	t-Score	Mean	Sig.	SD
6 th	.798	18.85	59.75	785.91	.599<p=.05	5.62
7 th	.786	14.84	51.79	804.56	.757<p=.05	17.05
8 th	.815	12.65	14.95	812.35	.569<p=.05	4.55
Ave. Score	.800			809.94	.641<p=.05	9.07
School C	(r)	Beta	t-Score	Mean	Sig.	SD
6 th	.785	10.59	22.65	786.42	.537<p=.05	5.66
7 th	.803	12.69	17.92	807.79	.876<p=.05	16.61
8 th	.818	7.95	9.58	816.90	.617<p=.05	3.89
Ave. Score	.802			803.70	.676<p=.05	8.72
School D	(r)	Beta	t-Score	Mean	Sig.	SD
6 th	.787.35	12.69	19.57	786.20	.612<p=.05	5.48
7 th	.827.28	9.65	15.89	807.84	.878<p=.05	6.75
8 th	.814.65	10.59	12.92	815.65	.851<p=.05	13.57
Ave. Score	.809.76			803.23	.780<p=.05	8.60

Data collected on Instructional Leadership and math assessment scores among four middle schools were analyzed to determine how effective instructional leadership may affect student achievement scores. Table 20 shows the average correlation scores, mean score, the p-value and the standard deviation by school and grades to determine the relationship between variables. Data from this study indicate there is a statistical significance with correlation scores showing schools having an effective culture impact reading scores. The results are:

School A: $r (.802)$, $.620 < p = .05$ (M= 804.53 SD=5.56) one-tailed;

School B: $r (.800)$, $.641 < p = .05$ (M= 809.94 SD=9.07) one-tailed;

School C: $r (.802)$, $.676 < p = .05$ (M= 803.70 SD=8.72) one-tailed;

School D: $r (.809)$, $.780 < p = .05$ (M= 803.23 SD=8.60) one-tailed.

We can conclude when leaders use effective instructional leadership practices; instructional strategies have a positive impact on math assessment scores.

Table 21: ANOVA: Instructional Leadership Math Scores

School A	Grade	Sum of Sq.	Df	F-Test	Mean	Sig.
Regression	8 th	4.12	6	.687	659.10	.608<p=.05
Residuals		2695.50	68			
Total		2699.62	74			
School B	8th	Sum of Sq.	Df	F-Test	Mean	Sig.
Regression		3.95	6	.659	485.45	.612<p=.05
Residuals		611.92	42			
Total		615.87	48			
School C	8 th	Sum of Sq.	Df	F-Test	Mean	Sig.
Regression		5.66	6	.944	330.63	.673<p=.05
Residuals		687.65	48			
Total		693.31	54			
School D	8 th	Sum of Sq.	Df	F-test	Mean	Sig.
Regression		4.71	6	.786	693.70	.756<p=.05
Residuals		709.68	47			
Total		714.39	53			

The ANOVA in Table 21 were used to verify and compare the value of the group means. Data collected to determine whether the differences between the group means are statistically significant. There is a significant difference when comparing the alpha or ($p < .05$) with the p-value in this model when analyzing data.

According to the data, the means from each school are different and do not equal zero. The results are: School A: $F(6, 68) = .687, .608 = p < .05$ ($M = 659.10$) School B: $F(6, 42) = .659, .612 = p < .05$ ($M = 485.45$); School C: $F(6, 48) = .944, .673 = p < .05$ ($M = 330.63$); School D: $F(6, 47) = .786, .756 = p < .05$ ($M = 693.70$).

Table 22: Multiple Regression Instructional Leadership & Math Scores

School	R	R Square	Adj. R Square	Std. Error. of the Est.	F Change	Sig.
School A	.325	.095	.150	8.19	.795	.598 < p = .05
School B	.516	.135	.195	12.90	.763	.698 < p = .05
School C	.425	.205	.129	18.16	.591	.816 < p = .05
School D	.490	.195	.153	6.95	.422	.760 < p = .05

Multiple regression analysis data are marginally strong in each school. There are several areas shown in the results of the regression scores, the R-square scores and the significance levels indicate there is a statistically significant probability that effective instructional leadership strategies impact math assessment scores. The multiple regression analysis in Table 22 includes the variance or percentage to determine how much the independent variable- Instructional Leadership strategies influenced math scores (DV). The multiple regression models used six predictors produced the following results:

Sch. A $R = .325, F(6, 68) = .795, .598 < p = .05, R. Sq. = 9.5\%$ Instructional Leadership & Math
 Sch. B $R = .516, F(6, 48) = .763, .698 < p = .05, R. Sq. = 13.5\%$ Instructional Leadership & Math
 Sch. C $R = .425, F(6, 54) = .591, .816 < p = .05, R. Sq. = 20.5\%$ Instructional Leadership & Math
 Sch. D $R = .490, F(6, 53) = .422, .760 < p = .05, R. Sq. = 19.5\%$ Instructional Leadership & Math

4.3.5. Using Data to Make Informed Decisions:

Research Question #5: To what extent does using research-based data to make informed Decisions that influence student achievement scores?

RH5#: The use of research-based data to make informed decisions strongly correlates with student achievement. Based on the data analysis for this question stated above, there is a strong correlation between using research-based data and student achievement scores. The hypothesis statement is accepted considering two statistical data points: the correlation scores and p-value for each school. These data points allow the hypothesis to be tested

Table 23: Correlation: Using Data to Make Informed Decisions & Reading Scores

School A	(r)	Beta	t-Score	Mean	Sig.	SD
6 th	.895	12.30	21.55	785.70	.755<p=.05	6.95
7 th	.790	15.78	8.95	787.78	.675<p=.05	6.55
8 th	.807	9.65	7.98	851.36	.596<p=.05	9.65
Average Score	.803			808.28	.675<p=.05	7.71
School B	(r)	Beta	t-Score	Mean	Sig.	SD
6 th	.787	9.45	15.75	752.75	.598<p=.05	7.95
7 th	.816	12.55	23.55	805.65	.765<p=.05	12.50
8 th	.768	16.69	19.85	819.12	.681<p=.05	9.56
Average Score	.796			792.50	.681<p=.05	10.00
School C	(r)	Beta	t-Score	Mean	Sig.	SD
6 th	.789	13.45	67.89	785.75	.458<p=.05	16.50
7 th	.810	8.95	42.85	800.83	.675<p=.05	4.65
8 th	.820	15.65	12.65	820.46	.785<p=.05	8.70
Average Score	.807			802.34	.639<p=.05	9.95
School D	(r)	Beta	t-Score	Mean	Sig.	SD
6 th	.775	18.85	18.50	885.89	.754<p=.05	9.65
7 th	.792	23.45	25.65	800.22	.697<p=.05	17.65
8 th	.814	29.45	17.58	820.20	.785<p=.05	6.78

Using Data to Make Informed Decisions and reading assessment scores among four middle schools were analyzed to determine the effectiveness by examining the correlation scores (r) and comparing the p values with the alpha ($p=.05$). Table 23 shows the average scores for the (r) correlation scores, mean scores, the p -values and the standard deviations to determine the relationship between variables. Data suggest there are statistical significance correlational scores when leaders of schools use data to make informed decisions regarding instructional practices which have a positive impact on reading assessment scores. The results are:

School A: $r (.803)$, $.675 < p = .05$ ($M = 808.28$ $SD = 7.71$) one-tailed;

School B: $r (.796)$, $.681 < p = .05$ ($M = 792.50$ $SD = 10.00$) one-tailed;

School C: $r (.807)$, $.678 < p = .05$ ($M = 802.34$ $SD = 9.95$) one-tailed;

School D: $r (.794)$ $.765 < p = .05$ ($M = 835.43$ $SD = 11.36$) one-tailed.

In conclusion, the correlational scores, means and the p -values for each school present high results that suggest using data to make informed decisions improves reading assessment scores in middle schools.

Table 24: Correlation: Using Data to Make Informed Decision & Math Scores

School A	(r)	Beta	t-Score	Mean	Sig.	SD
6 th	.796	6.75	19.95	449.35	.568<p=.05	5.96
7 th	.791	9.65	12.50	765.59	.655<p=.05	9.75
8 th	.833	10.65	21.65	805.56	.555<p=.05	9.75
Average Score	.807			673.50	.568<p=.05	8.48
School B	(r)	Beta	t-Score	Mean	Sig.	SD
6 th	.793	6.78	16.65	785.91	.756<p=.05	7.96
7 th	.796	20.65	14.75	804.56	.697<p=.05	15.75
8 th	.815	9.59	10.56	816.35	.730<p=.05	9.85
Average Score	.801			802.27	.744<p=.05	11.18
School C	(r)	Beta	t-Score	Mean	Sig.	SD
6 th	.788	19.56	9.65	786.42	.765<p=.05	16.65
7 th	.806	12.95	13.45	807.79	.595<p=.05	9.78
8 th	.815	9.49	9.45	865.80	.685<p=.05	8.85
Average Score	.803			820.00	.681<p=.05	11.76
School D	(r)	Beta	t-Score	Mean	Sig.	SD
6 th	.786	8.45	9.64	786.20	.695<p=.05	7.95
7 th	.808	16.43	10.65	807.84	.795<p=.05	18.95
8 th	.821	9.85	15.59	857.18	.765<p=.05	13.55
Average Score	.805			817.07	.751<p=.05	13.48

Data in Table 24 show the average scores for the correlation, mean score, the p-values and the standard deviation used to determine the relationship between variables. We analyzed the following practices using data to make Informed Decisions (IV) & math assessment scores (DV) to determine how the independent variables may affect math achievement scores. The evidence from these data suggest that there is statistically significant p-value when leaders of schools use data to make informed decisions, which has a positive impact on math assessment scores. The results are:

School A: $r (.807)$, $.568 < p = .05$ (M= 673.50 SD=8.48) one-tailed;

School B: $r (.801)$, $.744 < p = .05$ (M= 802.27 SD=11.18) one-tailed;

School C: $r (.803)$, $.681 < p = .05$ (M= 820.00 SD=11.76) one-tailed;

School D: $r (.805)$, $.751 < p = .05$ (M= 817.07 SD=13.48) one-tailed.

In conclusion, the correlational scores, means and the p-values for each school present high results that suggest schools using data to make informed decisions affects math assessment scores in middle school.

Table 25: ANOVA: Using Data to make informed Decisions & Math Scores

School A	Grade	Sum of Sq.	Df	F-Test	Mean	Sig.
Regression	8 th	274.02	6	45.67	759.23	.682<p=.05
Residuals		875.90	68			
Total		1149.92	74			
School B	8th	Sum of Sq.	Df	F-Test	Mean	Sig.
Regression		390.54	6	65.09	675.45	.702<p=.05
Residuals		611.92	42			
Total		1002.46	48			
School C	8 th	Sum of Sq.	Df	F-Test	Mean	Sig.
Regression		566.40	6	94.40	450.25	.722<p=.05
Residuals		687.65	48			
Total		1254.05	54			
School D	8 th	Sum of Sq.	Df	F-test	Mean	Sig.
Regression		338.70	6	56.45	378.50	.595<p=.05
Residuals		709.68	47			
Total		1048.38	53			

The ANOVA determined whether the differences between the group means are statistically significant by assessing differences among the means. There are significant differences when examining the means of each school group, which are different and do not equal to zero. The results are:

School A: $F(6, 68) = 45.67, .682 < p = .05; (M=759.23)$; School B: $F(6, 42) = 65.09, .702 < p = .05; (M=675.45)$; School C: $F(6, 48) = 94.40, .722 < p = .05, (M=450.25)$; School D: $F(6, 47) = 56.45, .595 < p = .05, (M=378.50)$

Table 26: Multiple Regression: Using Data to Make Informed Decision & Reading Scores

School	R	R Square	Adj. R Square	Std. Error. Est.	F Change	Sig.
School A	.420	.125	.098	7.18	.698	.699<p=.05
School B	.535	.184	.198	10.51	.753	.598<p=.05
School C	.591	.195	.109	17.05	.541	.808<p=.05
School D	.323	.050	.115	6.95	.325	.751<p=.05

Multiple regression analysis data are moderately strong in several areas, including the regression scores, the R-square, variances and the significance levels. Data suggest that using data to make informed decisions (IV) and Reading assessment scores (DV) show a significant difference to improve reading scores at each school. The multiple regression results are:

School A: R=.420, F (6, 68) = .698, .699=p<.05, Adj. R=.098 or 9.8% variance;

School B: R=.535, F (6, 42) = .753, .598=p<.05, Adj. R=.198 or 19.8% variance;

School C: R=.591, F (6, 48) = .541, .808=p<.05, Adj.R=.109 or 10.9% variance;

School D: R=.323, F (6, 47) =.325, .751=p<.05, Adj.R= .115 or 11.5% variance

4.3.6. Building Teacher Leadership Capacity

Research Question #6: To what extent does building teacher leadership capacity influence student achievement scores? RH#6: There is a significant difference in how building teachers' leadership capacity increases student achievement scores. The data suggest these variables show a statistical significance using the independent variable to influence the dependent variable. The hypothesis statement is accepted based on the data in this study

Table 27: Correlation: Teacher Leadership & Reading Scores

School A	(r)	Beta	t-Score	Mean	Sig.	SD
6 th	.855	.145	31.75	840.60	.736<p=.05	5.65
7 th	.783	.175	33.76	809.45	.598<p=.05	4.95
8 th	.822	.159	67.58	795.50	.558<p=.05	6.61
Average Score	.820			815.18	.630<p=.05	5.73
School B	(r)	Beta	t-Score	Mean	Sig.	SD
6 th	.784	.192	18.68	785.91	.597<p=.05	5.26
7 th	.781	.134	62.79	804.56	.678<p=.05	9.54
8 th	.814	.143	67.53	816.35	.825<p=.05	3.77
Average Score	.793			802.27	.679<p=.05	6.19
School C	(r)	Beta	t-Score	Mean	Sig.	SD
6 th	.791	.127	78.78	785.60	.870<p=.05	6.50
7 th	.799	.172	91.34	800.03	.318<p=.05	9.45
8 th	.828	.223	86.51	820.46	.522<p=.05	3.85
Average Score	.803			802.07	.700<p=.05	6.60
School D	(r)	Beta	t-Score	Mean	Sig.	SD
6 th	.793	.148	95.75	784.60	.627<p=.05	5.45
7 th	.808	.173	48.63	810.65	.545<p=.05	4.31
8 th	.803	.126	99.32	820.28	.535<p=.05	3.35
Average Score	.801			805.17	.569<p=.05	4.37

The correlation (r) scores in Table 27 show that teacher leadership capacity (IV) has a significant impact on Reading assessment scores (DV). The p-values indicate there is a significant difference with each school using the independent variable; teacher leadership capacity based on the correlation scores. Both the p-values and the correlation scores indicate there are statistical significance using the data collected to determine how the independent variable influence reading assessment scores. The results are: School A: $r (.820)$, $.630 < p = .05$ (M= 815.18 SD=5.73) one-tailed; School B: $r (.793)$, $.679 < p = .05$ (M= 802.27 SD=6.19) one-tailed; School C: $r (.803)$, $.700 < p = .05$ (M= 802.07 SD=6.60) one-tailed; School D: $r (.801)$, $.569 < p = .05$ (M= 805.17 SD=4.37) one-tailed:

Table 28: Correlation: Building Teacher Leadership Capacity & Math Scores

School	(r)	Beta	t-Score	Mean	Sig.	SD
School A						
6 th	.725	.145	45.75	595.05	.893<p=.05	3.77
7 th	.779	.125	31.24	793.69	.544<p=.05	6.79
8 th	.805	.116	47.63	818.65	.576<p=.05	5.75
Average Score	.769			735.79	.671<p=.05	5.43
School B						
6 th	.778	.167	34.65	784.81	.674<p=.05	7.03
7 th	.816	.133	79.54	803.14	.834<p=.05	12.38
8 th	.814	.123	69.41	819.12	.863<p=.05	6.62
Average Score	.778			802.35	.790<p=.05	8.67
School C						
6 th	.786	.225	59.29	786.42	.793<p=.05	5.66
7 th	.809	.176	68.34	807.79	.665<p=.05	16.60
8 th	.818	.132	31.82	816.90	.699<p=.05	5.81
Average Score	.804			803.70	.719<p=.05	9.35
School D						
6 th	.788	.217	16.67	786.20	.645<p=.05	5.48
7 th	.791	.151	33.95	807.84	.738<p=.05	7.89
8 th	.816	.187	53.04	816.96	.567<p=.05	5.82
Average Score	.798			803.66	.650<p=.05	6.39

The correlation (r) scores in Table 28 show that teacher leadership has a significant impact on student achievement math scores. The p-value indicates there is a significance value with each school using the independent variables-teacher leadership based on the correlation score. The correlation (r) results are: School A: $r(769.87)$, $.671=p<.05$. ($M=735.79$ $SD=5.43$), School B: $r(778.87)$, $.790=p<.05$ ($M=802.35$ $SD=8.67$); School C: $r(804.82)$, $.719=p<.05$, ($M=803.70$ $SD=9.35$); School D: $r(798.79)$, $.650=p<.05$ ($M=803.66$ $SD=6.39$)

Table 29: ANOVA: Building Teacher Leadership Capacity & Reading Scores

School A	Grade	Sum of Sq.	Df	F-Test	Mean	Sig.
Regression	8 th	4.55	6	.759	785.91	.652<p=.05
Residuals		512.60	68			
Total		517.15	74			
School B	8th	Sum of Sq.	Df	F-Test	Mean	Sig.
Regression		3.93	6	.655	802.35	.659<p=.05
Residuals		645.64	42			
Total		649.57	48			
School C	8 th	Sum of Sq.	Df	F-Test	Mean	Sig.
Regression		4.16	6	.694	786.05	.766<p=.05
Residuals		689.25	48			
Total		693.41	54			
School D	8 th	Sum of Sq.	Df	F-test	Mean	Sig.
Regression		4.73	6	.789	810.50	.680<p=.05
Residuals		951.60	47			
Total		956.33	53			

The correlation (r) scores in Table 28 show that teacher leadership capacity (IV) has a significant impact on student achievement with math scores (DV). The p -values indicate there is a significant high p -value with each school using the independent variable: teacher leadership based on the correlation scores. The correlation scores (r) results are: School A: $r(769.87)$, $.671=p<.05$. ($M=735.79$ $SD=5.43$), School B: $r(778.87)$, $.790=p<.05$ ($M=802.35$ $SD=8.67$); School C: $r(804.82)$, $.719=p<.05$, ($M=803.70$ $SD=9.35$); School D: $r(798.79)$, $.650=p<.05$ ($M=803.66$ $SD=6.39$).

In Table 29, the ANOVA used teacher leadership as an independent variable to verify and compare the value of the group means. Data determined whether the differences between the group means are statistically significant. This evidence implies there is a statistical significance showing the means of each school are different and not equal to zero. In addition, the F statistics allow an analysis to determine group means are different and do not equal zero. The results are:

School A: $F(6, 68) = .759$, $.652=p<.05$, ($M=785.91$);

School B: $(6, 42) = .655$, $.659=p<.05$, ($M=802.35$);

School C: $F(6, 48) = .694$, $.766=p<.05$, ($M=786.05$);

School D: $F(6, 47) = .789$, $.680=p<.05$ ($M=810.50$).

Table 30: Multiple Regression: Building Teacher Leadership Capacity & Reading Scores

School	R	R Square	Adj. R Square	Std. Error. of the Est.	F Change	Sig.
School A	.561	.175	.550	7.81	.594	.653<p=.05
School B	.473	.343	.135	14.89	.341	.495<p=.05
School C	.390	.228	-.065	8.98	.253	.851<p=.05
School D	.224	.098	.159	6.91	.358	.789<p=.05

In Table 30, it shows each schools' multiple regression analyses are strong in several areas; such as the regression scores, the R-square scores, and the significance levels. Data suggest that the variables show a statistical significance using the independent variable to influence the dependent variable scores. The multiple regression analysis includes the variance or percentage to determine how much influence the independent variable affects the dependent variable. The multiple regression models used six predictors produced these results are:

School A: $R=.561$, $F(6, 74) = .594$, $.653=p<.05$, $Adj. R=.550$, $R Sq.=175$ or 17.5% variance

School B: $R=.473$, $F(6, 48) = .341$, $.495= p<.05$, $Adj. R=.135$, $R Sq=.343$ or 34.3% variance

School C: $R=.390$, $F(6, 54) = .253$, $.851=p<.05$, $Adj.R= -.065$, $R. Sq.=.228$ or 22.8% variance

School D: $R=.224$, $F(6, 53) = .358$, $.789=p<.05$, $Adj.R = .159$, $R. Sq.=.098$ or 9.8% variance

4.3.7. Principal Leadership

Research Question #7: To what extent does principal leadership influences student achievement scores?

RH#7: Principal leadership significantly influences student achievement scores. Based on the data for this question, there was no statistical evidence to support that principals' leadership directly influence student achievement scores at either grade level. Therefore, the hypothesis statement is rejected based on the data collected for this study.

Table 31: Correlation: Principal Leadership & Reading Scores

School	(r)	Beta	t-Score	Mean	Sig.	SD
School A						
6 th	-.288	.145	3.17	149	.121<p=.05	4.50
7 th	-.120	.247	7.58	285	.216<p=.05	3.75
8 th	.115	.178	8.64	145	.165<p=.05	4.57
Average Score	-.448			579	.502<p=.05	4.84
School B						
6 th	-.275	.178	5.85	193	.214<p=.05	6.96
7 th	.108	.224	2.56	245	.122<p=.05	5.69
8 th	-.114	.169	6.26	192	.213<p=.05	4.69
Average Score	-.66			630	.183<p=.05	5.78
School C						
6 th	-.152	.165	9.69	243	.105<p=.05	2.79
7 th	-.120	.179	1.50	213	.221<p=.05	3.85
8 th	-.113	.275	1.53	206	.134<p=.05	6.75
Average Score	-.128			554	.460<p=.05	4.53
School D						
6 th	-.152	.167	6.30	145	.215<p=.05	3.87
7 th	-.287	.267	2.43	156	.154<p=.05	5.71
8 th	-.215	.310	4.39	159	.172<p=.05	4.96
Average Score	-.318			460	.539<p=.05	4.84

In Table 31, the correlational analysis shows that the Pearson correlation scores are non-significant between variables. The p-value is not higher than the alpha of 0.05, which indicates there is not an association or a relationship with principal leadership (IV) or leadership practices. Principals have an indirect leadership role and are part of the decision-making process in their school. Scholars have demonstrated empirically that the work of school leader has an indirect effect on student reading achievement scores (DV), mostly through support leaders provide to teachers (Hallinger, 2003 & 2005; Leithwood; Mascall, 2008). The results are:

School A: $r (-.448)$, $.502 < p = .05$ (M=579 SD=4.84); p=ns

School B: $r (-.166)$, $.183 < p = .05$ (M=630 SD=5.78); p=ns

School C: $r (-.128)$, $.460 < p = .05$ (M=554 SD=4.53); p=ns

School D: $r (-.318)$, $.539 < p = .05$ (M=460 SD=4.84) p=ns

Table 32: Pearson Correlation: Principal Leadership & Math Scores

School A	(r)	Beta	t-Score	Mean	Sig.	SD
6 th	-.150.55	-.145	2.09	125.89	.129<p=.05	2.26
7 th	-.187.06	-.056	-3.97	79.90	.057<p=.05	1.29
8 th	.113.42	-.289	-2.78	132.56	.287<p=.05	2.67
Average Score	-.150.34			735.95	.357<p=.05	2.07
School B	(r)	Beta	t-Score	Mean	Sig.	SD
6 th	-.186.58	-.117	-6.05	121.65	.019<p=.05	1.33
7 th	-.180.94	-.102	-3.04	132.50	.095<p=.05	1.56
8 th	-.120.35	-.181	-4.65	112.75	.175<p=.05	2.90
Average Score	-.162.62			755.63	.096<p=.05	1.93
School C	(r)	Beta	t-Score	Mean	Sig.	SD
6 th	-.145.00	-.294	-3.15	78.90	.079<p=.05	2.42
7 th	-.119.50	-.139	-1.49	143.85	.109<p=.05	3.55
8 th	-.112.35	-.151	-0.59	156.70	.052<p=.05	2.94
Average Score	-.125.50			126.48	.008<p=.05	2.97
School D	(r)	Beta	t-Score	Mean	Sig.	SD
6 th	-.124	-.045	-10.50	166.79	.130<p=.05	3.87
7 th	-.135	-.324	-15.58	155.45	.079<p=.05	3.97
8 th	-.176	-.034	-11.50	122.65	.059<p=.05	1.98
Average Score	-.112			148.29	.089<p=.05	3.27

In the Math correlational analysis in Table 32, the Pearson correlation scores are also non-significant between independent variables and the dependent variables. The p-value is not higher than the alpha ($p < .05$) which indicates there is not an association or a relationship with principal leadership practices (IV) and math scores (DV). Principals have an indirect instructional role and are part of the decision-making process that indirectly affects student achievement scores. Scholars have discussed empirically that the work of the school leader has an indirect effect on math achievement scores (DV), mostly through support leaders provide to teachers (Hallinger, 2003 & 2005; Leithwood; Mascall, 2008). The results are:

School A: $r (-.150)$, $.357 = p < .05$ ($M=735.95$ $SD=2.07$); $p=ns$;

School B: $r (-.162)$, $.096 = p < .05$, ($M=755.63$ $SD=1.93$); $p=ns$

School C: $r (-.125)$, $.080 = p < .05$, ($M=126.48$ $SD=2.97$); $p=ns$.

School D: $r (-.112)$, $.089 = p < .05$, ($M=148.29$ $SD=1.27$) $p=ns$.

Table 33: ANOVA: Principal Leadership Math Scores

School A	Grade	Sum of Sq.	Df	F-Test	Mean	Sig.
Regression	8 th	66.24	6	11.04	158.05	.022<p=.05
Residuals		295.50	68			
Total		361.74	74			
School B	8 th	Sum of Sq.	Df	F-Test	Mean	Sig.
Regression		99.36	6	16.56	168.25	.018<p=.05
Residuals		411.92	42			
Total		511.28	48			
School C	8 th	Sum of Sq.	Df	F-Test	Mean	Sig.
Regression		116.64	6	19.44	160.90	.034<p=.05
Residuals		689.25	48			
Total		805.89	54			
School D	8 th	Sum of Sq.	Df	F-test	Mean	Sig.
Regression		93.84	6	15.64	144.29	.029<p=.05
Residuals		409.68	47			
Total		503.52	53			

The ANOVA is comprised of three data points that measure the impact of principal leadership (IV) and math assessment scores (DV); these data points are the p-value, the F-statistics and the comparison of the group mean with other schools participating in this study. The p-value is not higher than the alpha ($p=.05$), which indicates there is not an association or a relationship between principal leadership practices. The results are:

School A: $F(6, 68) = 11.04, .022 < p = .05, p = ns$;

School B: $F(6, 42) = 16.56, .018 < p = .05, p = ns$;

School C: $F(6, 48) = 19.44, .034 < p = .05, p = ns$;

School D: $F(6, 47) = 15.64, .029 < p = .05, p = ns$

The F statistic scores are higher than the p-value. Therefore, data are non-significant. The group means close to zero and present non-significant data in this model. In conclusion, principals have an indirect instructional role and are part of the decision-making process that indirectly affects student achievement scores.

Table 34: Multiple Regression: Principal Leadership & Reading Scores

School	R	R Square	Adj. R Square	Std. Error. of the Est.	F Change	Sig.
School A	.287	.017	-.045	1.96	.221	.182 < p = .05
School B	.142	.026	.054	3.87	.122	.258 < p = .05
School C	.158	.073	.017	2.78	.115	.247 < p = .05
School D	.116	.230	-.031	1.88	.136	.123 < p = .05

The Adj. R square on each grade level presented a low variance. The percentage or variance indicates non-significant of data. The p-value is lower than the alpha ($p = .05$) which indicates there is not an association or a relationship between principal leadership practices.

School A $R = -.287, F(6, 74) = .221, .182 = p < .05, Adj. R = -.045, p = ns$

School B $R = -.142, F(6, 48) = .122, .258 = p < .05, Adj. R = .054, p = ns$

School C $R = -.158, F(6, 54) = .115, .247 = p < .05, Adj. R = .017, p = ns$

School D $R = -.116, F(6, 53) = .136, .123 = p < .05, Adj. R = .031, p = ns$

CHAPTER 5: CONCLUSION

The primary focus of this study is to investigate whether there is a relationship between distributed leadership practices and student achievement scores in middle-level education. Besides examining the different levels of relationship, this study discussed the Activity Theory and Distributive Cognition Perspective as they relate to distributed leadership practices that impact student performance or school reform.

The dimensions of distributive leadership examined School Organization, School Vision, School Culture, Instructional Leadership, Using Data to make Informed Decisions, Building Teacher Leadership capacity and Principal Leadership practices to determine their influence on achievement scores in middle-level education. These variables will constitute dimensions as the independent variables and reading and math scores as the independent variables.

Distributed leadership highlights the importance of positive social interactions between teachers and principals. Drath and Palus (1994) commented that it is a dynamic, multidirectional, collective activity that takes place in and through relationships among individuals with common interests and goals. Printy and Marks (2004) wrote “shared leadership calls attention to the importance of individual skill development (e.g. instructional strategies, a group process and relational skills” (p.124). Firestone (1996) cited “ distributed leadership is a set of practices and tasks that can, and should, be carried out by people at all level of the organization, rather than a set of attributes or behaviors found in formal, hierarchical leaders” (1996, p. 54). The Distributed Leadership perspective comprises a specific leadership structure that includes many leaders throughout the entire organization.

The primary elements of distributed leadership are decision-making, teacher collaboration regarding instructional development, building teacher leadership capacity, and utilizing data to improve organizational goals. Leaders must encourage teacher involvement in matters of instructional development and participation in the decision-making process that will further enhance student achievement scores.

A quantitative design was used in the study comprising a multiple regression analysis to determine the statistical significance of leadership practices that may influence or impact student performance. Middle school students failed high-stakes assessment tests, consistently scoring low on the assessment tests in math and reading. There has been increasing demand for principals and teachers to become change agents and reform middle schools for students to show and sustain academic growth.

5.1. Major Findings

Data analyses from this study reveal the importance of educational reform initiatives and that they are critical to increasing student achievement scores and over-all student performance. As part of the data analysis and findings, practices that included School Organization, School Vision and School Culture related to school environment are essential to organizational changes in middle-level education. Findings suggest that, when establishing rules, policies, instructional strategies and using effective lesson plans, students' achievement scores improved on each grade level based on the correlational results. There are significant differences in the correlation scores

when the dimensions of distributed leadership practices are applied within the leadership structure in middle schools.

I observed that an effective Instructional programs (IV) and Using Data to Make Informed Decisions (IV) are essential interventions for student academic success. The evidence from these findings suggests distributed leadership practices presented a significant correlation between independent variables and achievement scores. Data showed that Instructional Leadership practices, Using Data to make Informed Decisions and Teacher Leadership practices indicated a statistically significant impact on student achievement scores in each of the analyses in the study. The analyses used in this study were Pearson Correlation, the ANOVA and the Multiple Regression Model Summary. Each had a specific role in determining the significance of the data.

It was determined the data analysis for Principal Leadership role showed an indirect effect on student achievement scores. There was no statistical significance where administrators directly enhance student performance by way of increased student achievement scores. Principal leadership has an insignificant effect on achievement scores in middle-level education based on the data analysis in this study.

5.2. Findings from other Distributed Leadership Studies

Gentilucci and Muto's (2007) study focused on student perceptions of principals' instructional leadership behaviors that positively influenced students' learning and academic achievements. The data were collected from 39 eighth grade students randomly selected from three schools on the Central Coast of California. Findings from the study revealed that

instructional leaders positively influenced students' academic achievement. Further, the study indicates that principals who visited classes were more effective than those principals who visited the classroom less for shorter periods.

There is a considerable body of work in the distributed leadership literature on improving schools and organizations across the educational spectrum. Distributed leadership is a relatively new leadership structure used to change the culture and climate of an organization. As distributed leadership processes become familiar to educators, this leadership structure becomes systemic to reform failing schools. Distributed leadership attracts many educational researchers and scholars who provide convincing opinions and arguments as to how this phenomenon is promoted as a school reform initiative.

Silns et al. (2002) showed that student outcomes are more likely to improve when distributed leadership sources are shared throughout the school community, so teachers are empowered to influence change. The study's findings also concluded that positive correlations exist between teacher leadership and increased student achievement.

Spillane et al. (2001) conducted a study in which they explored distributed leadership in action to draw conclusions after examining different distributed leadership activities that contributed to school improvement and student learning. The researchers used two empirical studies of leadership to consider the concept of distributed leadership, the roles of teacher leadership, and the inherent barriers to distributed leadership. Findings from these empirical studies indicate that employing any of the forms of distributed leadership were more likely to establish a leadership structure and foster a collaborative culture among teachers and improve student achievement.

Leithwood and Riehl (2003) conducted similar research on a larger scale that showed the effects of leadership style on student learning. Their findings suggested that through distributed leadership, teacher leaders were actively involved in supporting less experienced teachers, embracing goals, and understanding the changes needed to enhance teaching and student learning. Several studies have noted that clear implications of the distributed leadership style are more likely to influence student achievement and teacher leadership capacity. They suggest the days of the principal as the only instructional leader are gone.

MacIver and Farley (2003) and Waters and Marzano (2006) identified hiring practices, curriculum and instructional support, and professional development for teachers as four key factors influencing student achievement. Further, these researchers suggested that the student performance indicators for administrators can determine schools' progress in these areas.

Cotton (2003), Gamage et al. (2009), Waters et al. (2004), and Gentilucci and Muto (2007) have asserted that distributing leadership practices have a significant impact on student achievement and the instructional process.

Gamage et al.'s (2009) research study's findings revealed positive results from principals who demonstrated models of teaching techniques. The role of administrators should include a focus on promoting professional growth and emphasizing improvements throughout the entire organization.

5.3. Recommendations of the Study

These findings give stakeholders the opportunity to promote school reforms, strengthen teaching and learning, enhance leadership practices and improve overall student performance. First, School Climate, School Vision and School Organization are important to

the health of any organization. Principals and teachers must have a collective understanding and belief system in place to move beyond their present school environment. Second, principals should not underestimate the ability of the staff to promote the school's academic agenda.

Finally, principals should work closely with teachers, parents and the community in which the school is located when there are school-wide initiatives in place and promoted.

The importance of these findings allows principals to gain new knowledge regarding the effectiveness of distributed leadership in practice. The evidence shows the results between distributed leadership practices and student achievement scores will help principals and district officials make informed decisions regarding their school. The most important implication of the research is finding similarity between the two variables based on the sample generalized to the population (Salkind, 2011, p. 128).

Results from the data give principals the opportunity to apply distributed leadership practices, understand DL's framework and changing the leadership structure in their particular middle school.

Findings will also allow principals to change their administrative role to a managerial role that allows more time to manage their school as an organizational unit. This research study also suggests teachers become involved in the decision-making process, build capacity and accept roles to improve the instructional process to improve student achievement scores.

5.4. Discussion

In a review of accountability and school performance, this study's findings are viewed as a holistic approach to improving student achievement. Elmore (2000) and Spillane (2005) believe that distributed leadership is a valid leadership model for organizational change, which focuses on practices and administrative activities to improve student achievement and overall outcomes. This study summarizes the DL perspective for school leaders to identify and align these leadership practices with organizational improvement in middle-level education.

The results showed there are significant differences when analyzing correlational scores using independent and dependent variables. These variables allow leaders to focus on specific areas to improve the school environment and overall academic performance.

Data show there are statistically significant relationships between the instructional programs, using data to make Informed decisions and assessment scores. This means the correlational scores, group means and the variances are more likely to improve when leaders apply leadership practices as part of the leadership structure. According to the data, each school posted high variances and p-value that was above the alpha (.05). Data suggest that principals did not have significant effect on assessment scores in reading and math scores. Both independent variable (principal leadership) and dependent variable (reading scores) posted low and insignificant. Principal leadership and the roles of principals presented no statistical significance of student assessment scores because of the principal's indirect role with student assessment scores.

5.5. Suggestions for Further Research Studies

This study recognizes the paucity of research that includes investigations of relationships using correlational methods comparing leadership activities or practices and student achievement. The lack of the research has left a noticeable gap in the literature in middle-level education. Further research using this design could extend this study by building onto the existing distributed leadership literature. Other recommendations call for future studies to measure students' achievement outcomes with distributed leadership practices that analyze student achievement growth by subgroups, geographical areas and compare the differences by schools and grades in middle schools. More research is needed to determine if there is a relationship between variables that shows a significant high variance in each middle school. These key findings point to practices that focus on distribution of leadership, using teacher leadership with a focus on building capacity to solve problems, data mining, and use of a collective decision-making process among the staff.

This study also includes other emerging issues not part of the literature review. All distributed leadership activities, including practices, administrative functions, and policies that impact the outcomes of students' performance are areas needing additional research (e.g. peer coaching, educational resources and policies, discipline, students' social issues, motivations and incentives, and student personal values).

Finally, more correlational and multiple regression studies are needed to provide necessary data that could change the leadership and instructional process in middle schools. Research studies should focus on how educational policies and laws will transform middle schools. Research efforts in a larger context must include more multiple regression and ANOVA, bivariate, multivariate, and correlational studies that will increase and provide new perspectives in middle schools. These research approaches will help leaders make an informed decision that improves and sustains overall student performance.

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Appendix A



Table 1. Interim Cut Scores for DCAS Reading

Grade	Well Below Standard	Below Standard	Meet Standard	Advanced
2	586 or less	587-622	623-680	681 or more
3	650 or less	651-689	690-736	737 or more
4	681 or less	682-720	721-771	772 or more
5	699 or less	700-738	739-797	798 or more
6	724 or less	725-757	758-817	818 or more
7	743 or less	744-775	776-826	827 or more
8	763 or less	764-799	800-843	844 or more
9	766 or less	767-810	811-852	853 or more
10	774 or less	775-819	820-858	859 or more

Table 2. Interim Cut Scores for DCAS Mathematics

Grade	Well Below Standard	Below Standard	Meet Standard	Advanced
2	502 or less	503-576	577-687	688 or more
3	592 or less	593-658	659-749	750 or more
4	648 or less	649-699	700-792	793 or more
5	689 or less	690-731	732-810	811 or more
6	715 or less	716-756	757-835	836 or more
7	739 or less	740-778	779-849	850 or more
8	766 or less	767-799	800-861	862 or more
9	774 or less	775-811	812-871	872 or more
10	791 or less	792-829	830-896	897 or more

APPENDIX B
DISTRIBUTED LEADERSHIP QUESTIONNAIRE

Your responses are voluntary, confidential and greatly appreciated. Individual will not be identified in this questionnaire. Please respond to the following statements in terms of how frequently each statement is descriptive of your school.

DEMOGRAPHICS

Gender:

Female Male

Ethnicity:

Native American Asian/Pacific Black Hispanic White Other

Current Roles:

Principal Assistant Principal Dept. Chairs PLC Teacher Leaders

Years of Experience:

1-5 6-10 11-15 16-20 21-25 26 over

How many years have you worked at this school? 1-3 4-6 7/plus

Highest Degree:

Master Master Plus 45 Doctorate

SCHOOL ORGANIZATION

1.The school’s daily and weekly schedules provide time for teachers to collaborate on instructional issues.

Strongly Disagree Disagree Neutral Agree Strongly Agree

2. There is a formal structure in place in the school to provide teachers and professional staff opportunities to participate in school level instructional decision making.

Strongly Disagree Disagree Neutral Agree Strongly Agree

3.Teachers who assume leadership roles in the school have sufficient school time to permit them to make meaningful contributions to school.

Strongly Disagree Disagree Neutral Agree Strongly Agree

4.Teachers who assume leadership roles in the school have sufficient resources to be able to make meaningful contributions to the school.

Strongly Disagree Disagree Neutral Agree Strongly Agree

5. The school’s weekly or monthly schedule provides time for grade level teams to meet with the administration to discuss instructional issues.

Strongly Disagree Disagree Neutral Agree Strongly Agree

6. Teachers who provide coaching in reading instruction are provided sufficient school time to assist their colleagues in improving their teaching strategies.

Strongly Disagree Disagree Neutral Agree Strongly Agree

7. Teachers who provide coaching in math instruction are provided sufficient school time to assist their colleagues in improving their teaching strategies.

Strongly Disagree Disagree Neutral Agree Strongly Agree

SCHOOL VISION:

8.The school has clearly written a vision statement.

Strongly Disagree Disagree Neutral Agree Strongly Agree

9. Teachers can clearly describe the school’s vision.

Strongly Disagree Disagree Neutral Agree Strongly Agree

10. School goals are aligned with the district goals.

Strongly Disagree Disagree Neutral Agree Strongly Agree

11. The school has a set of shared values that guide school improvement efforts.

Strongly Disagree Disagree Neutral Agree Strongly Agree

12. The school has a clearly written mission statement.

Strongly Disagree Disagree Neutral Agree Strongly Agree

SCHOOL CULTURE

13. It is apparent that many of the teachers at my school can take leadership roles.

Strongly Disagree Disagree Neutral Agree Strongly Agree

14. Teachers at my school discuss and help one another solve problems.

Strongly Disagree Disagree Neutral Agree Strongly Agree

15. There is mutual respect and trust among the staff.

Strongly Disagree Disagree Neutral Agree Strongly Agree

16. There is mutual respect and trust between school administration and the staff.

Strongly Disagree Disagree Neutral Agree Strongly Agree

17. Teachers' instructional learning expectations are high for their students.

Strongly Disagree Disagree Neutral Agree Strongly Agree

18. All students, regardless of their racial or economic status, are expected to achieve at high levels.

Strongly Disagree Disagree Neutral Agree Strongly Agree

INSTRUCTIONAL PROGRAM:

19. Teachers and administration share accountability for students' academic performance.

Strongly Disagree Disagree Neutral Agree Strongly Agree

20. Regular classroom teachers meet frequently with instructional aides or specialists to discuss the reading needs of specific students.

Strongly Disagree Disagree Neutral Agree Strongly Agree

21. Regular classroom teachers meet frequently with instructional aides or specialists to discuss the mathematics needs of specific students.

Strongly Disagree Disagree Neutral Agree Strongly Agree

USING DATA TO MAKE INFORMED DECISIONS

22. The school uses results from the districts assessments to evaluate the instructional program at this school.

Strongly Disagree Disagree Neutral Agree Strongly Agree

23. The school uses results from teacher made assessments to evaluate the instructional program at this school.

Strongly Disagree Disagree Neutral Agree Strongly Agree

24. The school examines and discusses student work samples

Strongly Disagree Disagree Neutral Agree Strongly Agree

25. Teachers use observation and evaluation feedback from the administration to improve instruction in their classroom.

Strongly Disagree Disagree Neutral Agree Strongly Agree

TEACHER LEADERSHIP

26. Teachers are interested in participating in school leadership roles.

Strongly Disagree Disagree Neutral Agree Strongly Agree

27. Informal school leaders play an important role in the school in improving the performance of their colleagues.

Strongly Disagree Disagree Neutral Agree Strongly Agree

28. Informal school leaders play an important role in the school in improving the achievement of students.

Strongly Disagree Disagree Neutral Agree Strongly Agree

29. The school has expanded its capacity by providing professional staff formal opportunities to take on leadership roles.

Strongly Disagree Disagree Neutral Agree Strongly Agree

30. Teachers at my school discuss strategies and share materials

Strongly Disagree Disagree Neutral Agree Strongly Agree

31. Teachers at my school discuss and help one another solve problems.

Strongly Disagree Disagree Neutral Agree Strongly Agree

PRINCIPAL LEADERSHIP

32. The principal actively participates alongside teachers in math instructional
 Strongly Disagree Disagree Neutral Agree Strongly Agree
33. The principal actively participates alongside teachers in reading instructional meetings.
 Strongly Disagree Disagree Neutral Agree Strongly Agree
34. The principal is knowledgeable about the school’s instructional issues.
 Strongly Disagree Disagree Neutral Agree Strongly Agree
35. the principal’s goals are aligned with the school districts.
 Strongly Disagree Disagree Neutral Agree Strongly agree
36. the principal provides leadership in improving academic achievement.
 strongly disagree Disagree Neutral Agree Strongly agree
37. The principal provides a structure that encourages all teachers to participate in improving academic achievement.
 Strongly Disagree Disagree Neutral Agree Strongly Agree
- Thank you for your cooperation .

APPENDIX C: CONSENT FORM

Delaware State University Educational Leadership Graduate Studies

Title of the Dissertation

Using A Distributed Leadership Model to Investigate How Distributed Leadership Practices Impact Student Achievement Scores in Middle-Level Education.

As an employee of the Christina School District, you are invited to participate in the Distributed Leadership Questionnaire research study conducted by Clifton Gilchrist. Mr. Gilchrist is a candidate in the Delaware State University Educational Leadership Graduate Studies Program. The research study's focus is to determine how distributed leadership practices impact assessment scores in Reading and Math in sixth, seventh and eighth grades in middle schools.

As an educator, you were selected as a participant because your role provides critical data that may identify effective leadership and instructional practices to improve student achievement scores and overall performance. If you decide to participate, you are being asked to fill out the DLQ, which take approximate 30 to 35 minutes.

There is no financial benefit or compensation of any kind as results of participating in this study. Any information obtained in connection with this study that identify you will remain confidential. Participant's identity will be kept confidential by securing all returned questionnaires in a locked electronic file/folder of a computer. Data will remain anonymous and at no time will name of teachers or schools will be revealed. Research files and data stored will be destroyed after five years.

Your participation is voluntary. Your decision whether or not to participate will not affect your relationship with your place of employment. If you have questions regarding your rights as a research participant, please contact the Delaware State University's Graduate Studies Office (302-857-7170).

Your signature indicates that you have read and understand the information provided above, that you willingly agree to participate, that you may withdraw your consent at any time and discontinue participation without penalty, that you will receive a copy of this form, and that you will waive any legal claims.

Signature _____ Date _____ School _____

APPENDIX D: DATA COLLECTION TOOL

Data Collection Tool																		
Gender		Ethnicity					Leadership Roles					Years of Experience						
Female (1)	Male (2)	Native American (1)	Asian (2)	Black (3)	Hispanic (4)	White (5)	Principal (1)	Asst Principal (2)	Dept Chair (3)	PLC's (4)	Tchr Leadership (5)	1-5 (1)	6-10 (2)	11-15 (3)	16-20 (4)	21-25 (5)	26+ (6)	
Highest Degree			Yrs. at this School															
Master (1)	Master + 45 (2)	Doctorate ED.D (3)					1-3 (1)	4-6 (2)	7+ (3)									
Questionnaire Responses: Strongly Disagree (1) Disagree (2) Neutral (3) Agree (4) Strongly Agree (5)																		
Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12	Q13	Q14	Q15	Q16	Q17	Q18	
Q19	Q20	Q21	Q22	Q23	Q24	Q25	Q26	Q27	Q28	Q29	Q30	Q31	Q32	Q33	Q34	Q35	Q36	

APPENDIX E: REQUEST LETTER TO CONDUCT A RESEARCH STUDY IN MIDDLE SCHOOLS

20 Montpelier Court
New Castle, DE 19720
July 24, 2015

Dr. Freeman Williams
Superintendent
Christina School District
201 Lombard Street
Wilmington, Delaware 19805

Dear Dr. Williams:

I am a doctoral candidate matriculating in the Department of Educational Administration and School Leadership at Delaware State University. The purpose of this letter is to request your assistance with a research project I am conducting in middle schools.

The goal of the study is to investigate the impact of distributed leadership practices and the relationship of achievement DCAS scores. It is intended that the findings of the study will show that leadership practices have significance value on student achievement and DCAS scores. The study will also build on extending knowledge of identifying leadership practices that are effective and could be used in all Delaware middle schools.

The Distributed Leadership Questionnaire (37 responses) will be used to collect data. Staff of each middle school can either fill out the questionnaire during faculty or PLC meetings. I am requesting permission to conduct this research study by collecting responses from administrators, teachers and leadership team members that serve in a leadership capacity in their particular school.

For confidentiality purposes, all responses in this study will remain anonymous of school names and principal identification. In addition, If you have any questions or need more information regarding this study, I am willing to meet with you at any time.

Respectfully,

Clifton Gilchrist

APPENDIX F: AN APPROVAL LETTER TO USE THE DLQ INSTRUMENT

Sun 8/11/2013 10:34 am

Davis, Monique W <MWDAVIS@AACPS.org>

To: Clifton Gilchrist

Good Morning,

Yes, you have permission to use the survey. I will start a new job on Monday so this email may no longer be working. Please contact me on mwdaka@gmail.com if you are in need of any further assistance. Can you please share your final dissertation with me upon completion?

Sincerely,

Monique Whittington Davis, Ed. D; Regional Assistant Superintendent
Arundel and South River Region
Regional Office of School Performance at Annapolis Middle School
410-626-9747/48 (Office)

BACKLEAF PAGE