

Principal Mental Models and Perceptions of Distributed Leadership

A Dissertation Presented for the
Doctor of Philosophy
Degree
The University of Tennessee, Knoxville

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August 2015

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Dedication

This dissertation is dedicated to my family, without whom this endeavor would have been impossible. To my husband, McKeever, thank you for your encouragement, patience, support and unwavering belief in me. To my daughters, Haley and McKinley, thank you for encouraging me to keep going and never give up, and for being so understanding and forgiving during this journey. I pray you will find inspiration to pursue your own dreams, no matter how impossible they may seem.

Acknowledgements

I wish to acknowledge and thank the many people who have contributed to the completion of this dissertation and Doctor of Philosophy degree. First, I would like to acknowledge Dr. Pamela Angelle, my committee chair, for her many hours of guidance, support, encouragement, creativity and patience. I am grateful for the time she spent guiding me throughout this journey, sharing her own experiences and pushing our cohort to succeed. I would like to acknowledge and thank my committee members, Dr. Ralph Brockett, Dr. Mary Lynne Derrington and Dr. Kerry Robinson for their support and guidance and willingness to serve on my committee. I would like to acknowledge my former committee members, the late Dr. Vincent Anfara, Dr. Gerald Ubben, and Dr. Jason Huff. I wish to acknowledge my mentors in educational leadership, Mr. Tom Hayes, Ms. Dianne Sexton, Dr. Michael Bundy and Ms. Nancy West. Finally, I wish to acknowledge and thank all of my cohort members, but especially Dr. Melissa Blalock, Dr. Shannon Strahan, and Dr. Tammy Stewart who provided support and friendship throughout this process. I wish to express my gratitude to my parents, Charlie and Cathy Earlywine, my sister, Carol Johnson, and my brother, Lance Earlywine, and all of my extended family, for encouraging me and supporting my dreams over the years. Finally, I wish to express my gratitude for God's word that has provided encouragement and strength throughout my life, but especially throughout this journey, specifically Hebrews 11:1 and James 1:2-5.

Abstract

With growing pressure on school leaders to support collaboration and distribute leadership among teachers and staff, principals need guidance in examining their own mental models on these issues to challenge and improve their current ways of thinking. The purpose of this mixed methods, multi-site case study was to describe three middle school principals' mental models of distributed leadership and to examine to what extent the three preconditions (leadership practice, relationships, and trust) from Angelle's (2010) model of distributed leadership for middle schools existed in the three principals' schools. Qualitative data included principal interviews, a written statement of leadership philosophy, a journal of leadership decisions, and field notes from observations. Quantitative data included two survey instruments completed by teachers in the three principals' schools, the Omnibus T-Scale (Hoy & Tschannen-Moran, 2003) and the Organizational Climate Description for Middle Schools (Hoy, Hoffman, Sabo & Bliss, 1996). Results from this study confirmed and strengthened the findings of Angelle's study and provided a lens of distributed leadership in practice in three middle school settings. The findings also suggested an additional element, principal mental models, as a necessary component for distributed leadership in middle schools. Findings from this study confirmed that the key to understanding distributed leadership is to connect what leaders know (mental models) with what they do (leadership practice and relationships) and how this is evidenced in the school (through trust). A model was developed to illustrate the key elements of distributed leadership connections.

Table of Contents

CHAPTER 1 INTRODUCTION TO THE STUDY.....	1
Statement of the Problem.....	4
Purpose of the Study	6
Significance of the Study	6
Research Questions	7
Definitions of Key Terms	8
Limitations	8
Delimitations.....	9
Organization of the Study	9
Conclusion	9
CHAPTER 2 REVIEW OF LITERATURE	11
Search Process	12
Matrix of Sources.....	13
Distributed Leadership.....	16
Distributed Leadership as a Conceptual Framework	17
Perspectives.....	18
Changing Demands	21
Empirical Studies	23
Evidence of distributed leadership.....	25
Leadership practice	26
Relationships.....	27
Trust.....	28
Summary of Distributed Leadership	30
Mental Models	30
Changing Mental Models.....	33
Uncovering Mental Models	35
Summary of Mental Models	38
Middle School Concept.....	39
Chapter Summary	41
CHAPTER 3 DESIGN OF THE STUDY	44
Rationale and Assumptions for Mixed Methods Design	46
Design of the Study.....	48
Case Study Design	48
Convergent Parallel Design	49
Sampling Strategy	50
Sites and Participants	51
Data Collection Procedures.....	52
Qualitative Data Collection.....	54
Written Statement of Leadership Philosophy.. ..	54
Semi-structured Interview.....	55

Journal of Leadership Decisions.....	56
Observation	56
Quantitative Data Collection.....	57
The Omnibus T-Scale	57
The Organizational Climate Description for Middle Schools.	58
Data Analysis	60
Qualitative Data Analysis	61
Quantitative Data Analysis	64
Methods of Verification.....	64
Role of the Researcher	65
Potential Ethical Issues	66
Chapter Summary	67
CHAPTER 4 FINDINGS AND ANALYSIS	68
School 1: Riverview Middle School.....	69
Context and Demographics.....	69
Riverview Principal	70
Qualitative Data	70
Mental Models	71
Leadership Practice	72
Relationships.....	75
Trust	76
Quantitative Data	77
Leadership Decision-Making.....	77
Leadership Behavior	79
Leadership Trust	81
Summary	82
School 2: Cedar Hills Middle School	83
Context and Demographics.....	83
Cedar Hills Principal	83
Qualitative Data	84
Mental Models	84
Leadership Practice	85
Relationships.....	87
Trust	88
Quantitative Data	88
Leadership Decision-Making.....	89
Leadership Behavior	91
Leadership Trust	92
Summary	93
School 3: Ridgewood Middle School	93
Context and Demographics.....	93
Ridgewood Principal.....	94
Qualitative Data	95

Mental Models	95
Leadership Practice	96
Relationships	97
Trust	98
Quantitative Data	99
Leadership Decision-Making	99
Leadership Behavior	101
Leadership Trust	102
Summary	103
Cross-Case Findings and Analysis	104
Context and Demographics	104
Qualitative Data	106
Mental Models	106
Leadership Practice	107
Relationships	108
Trust	108
Summary of Qualitative Data	109
Quantitative Data	109
Leadership Decision Making	109
Leadership Behavior	110
Leadership Trust	114
Summary	114
CHAPTER 5 DISCUSSION, IMPLICATIONS, RECOMMENDATIONS	116
Discussion	116
Research Question 1	117
Mental Models	118
Research Question 2	120
Leadership Practice	120
Relationships	121
Research Question 3	122
Trust	122
Distributed Leadership Connections	123
Implications	127
Recommendations	129
Conclusion	130
References	132
Appendices	144
Vita	152

List of Tables

Table 1. <i>Empirical and Theoretical Studies in Review of Literature</i>	14
Table 2. <i>Student Demographic Information of Participating Schools</i>	53
Table 3. <i>School Demographic Information of Participating Schools</i>	53
Table 4. <i>Design Matrix of Data Sources for Data Triangulation</i>	54
Table 5. <i>Interview Question Analysis</i>	55
Table 6. <i>Research Questions in Relation to Interview Questions</i>	56
Table 7. <i>Completion Rates for Survey Instruments</i>	57
Table 8. <i>Research Question Related to Omnibus T-Scale Survey Questions</i>	58
Table 9. <i>Six Dimensions of the OCDQ-RM</i>	59
Table 10. <i>Research Question Related to OCDQ-RM Survey Questions</i>	60
Table 11. <i>Code Map</i>	62
Table 12. <i>Riverview and State Achievement Data</i>	70
Table 13. <i>Summary of Journal Entries (Paul Carter)</i>	78
Table 14. <i>Distribution of Leadership Decisions (Paul Carter)</i>	79
Table 15. <i>Descriptive Statistics of OCDQ-RM for Riverview</i>	81
Table 16. <i>Descriptive Statistics of Omnibus T-Scale for Riverview (n=22)</i>	82
Table 17. <i>Cedar Hills and State Achievement Data</i>	84
Table 18. <i>Summary of Journal Entries (Kathy Wilson)</i>	89
Table 19. <i>Distribution of Leadership Decisions (Kathy Wilson)</i>	90
Table 20. <i>Descriptive Statistics of OCDQ-RM for Cedar Hills</i>	92
Table 21. <i>Descriptive Statistics of Omnibus T-Scale for Cedar Hills (n=22)</i>	92
Table 22. <i>Ridgewood and State Achievement Data</i>	94
Table 23. <i>Summary of Journal Entries (Bill Lawson)</i>	100
Table 24. <i>Distribution of Leadership Decisions (Bill Lawson)</i>	101
Table 25. <i>Descriptive Statistics of OCDQ-RM for Ridgewood</i>	103
Table 26. <i>Descriptive Statistics of Omnibus T-Scale for Ridgewood (n=21)</i>	103
Table 27. <i>Comparison of Student Ethnicity</i>	105
Table 28. <i>Comparison of Achievement Data</i>	105
Table 29. <i>Summary of Qualitative Data</i>	109
Table 30. <i>Comparison of Leadership Decisions</i>	112
Table 31. <i>Descriptive Statistics for OCDQ-RM</i>	113
Table 32. <i>Descriptive Statistics for Trust in Principal Subscale Omnibus T-Scale</i>	114

List of Figures

<i>Figure 1. Overall Study Design</i>	45
<i>Figure 2. Comparison of Mean Scores on OCDQ-RM Across all Three Schools</i>	113
<i>Figure 3. Distributed Leadership Connections</i>	125

CHAPTER 1

INTRODUCTION TO THE STUDY

One Friday afternoon in early November a typical middle school in a small town experienced a horrific crisis (Fowler, 2007; Marlar, 2012). A seventh-grade student left school at the end of the day and hopped on her bike heading home as she had countless times before. At a large intersection on a busy street, her bike slipped off the curb and she was struck by a school bus loaded with her fellow classmates also on their way home. She sustained massive injuries and died two days later.

That horrible accident set in motion an extraordinary opportunity for people to come together in a way never imagined before that day. While the leaders of the school had dealt with tough issues before, nothing could have prepared them for this. Yet, they were able to display incredible leadership and guidance for the school and the entire community. The leaders came together and acted quickly to set plans in place to handle the tragic event. One person could not have accomplished this task alone. Leadership had to be distributed among many, each displaying personal strengths and abilities. A complete shift of thinking for many of those involved was essential. Previous mental pictures of how things worked were set aside and new ways of thinking emerged.

The leaders in that school began to realize how critical it was for multiple people to be involved in decision-making, planning, and the implementation of plans. One person could no longer try to do it all alone. Many people needed to work together, collaborate effectively, and share leadership responsibilities to successfully lead the school through such a tragic event. The team of people working together, collaborating effectively, and sharing leadership was also

necessary to successfully lead the school through the challenges faced every day. Fortunately, the principal leading this middle school was able to understand and accept that leadership at its best is distributed among many.

Schools today face a multitude of challenges. Whether these challenges are major crises, new standards, school safety, budget shortfalls, achievement gaps, evaluations, or parent involvement, schools need effective leaders who can collaborate with others in order to meet demands. Collaboration, sharing power, and distributing leadership may provide better ways for leaders to successfully meet these incredible challenges.

Research supports the idea that “the long standing belief in the power of one is being challenged and today there is much more talk about shared leadership, leadership teams, and distributed leadership” (Harris, 2003, p. 314). For some practicing principals, distributing leadership among many in a school presents a significant change from leadership expectations of the past. For new and aspiring leaders, distributed leadership demands new ways of training to prepare these individuals for the monumental tasks ahead. Distributed leadership, while prevalent in recent research, may present an entirely new way of thinking for some principals. New ways of thinking in traditional organizations, such as schools, are not always easy to accomplish. People and organizations can trap themselves in old ways of thinking and defensive routines that insulate mental models from examination, making change difficult (Senge, 2006).

Mental models are deeply held internal images of how the world works (Senge, 2006). These images are deeply ingrained in our thinking and can be simple generalizations or complex theories. Mental models represent the assumptions, generalizations, and images that not only influence how people understand the world, but also the actions they take based on that

understanding (Senge, 2006; Weber, 1999). Mental models shape how we act and what we see. People do not always behave in accord with their espoused models, but they always behave in accord with their mental models (Senge, 2006).

Unfortunately, mental models can be incorrect, incomplete, or inaccurate. Because mental models are sometimes inaccurate, they can limit a person's willingness or ability to change (Reynolds, Murrill, & Whitt, 2006). The problems with mental models arise when they become implicit or exist below the level of our awareness. When we are unaware of our mental models, the mental models remain unexamined and because they are unexamined, the models remain unchanged (Senge, 2006).

With growing research showing the effectiveness of distributed leadership (Angelle, 2010; Harris, 2005a; Harris & Spillane, 2008; Spillane, 2006) there is increasing pressure on schools to incorporate the agency of multiple people and groups who work at guiding and mobilizing staff (Harris, 2003). Recent educational leadership models suggest that leadership in schools must not be the sole responsibility of the principal, but rather might best be distributed among other professionals in schools (Janson, Stone & Clark, 2009). Making a significant change to a distributed view of leadership will require principals to reflect on their current mental models about leadership.

To bring about a significant change in thinking and in everyday practice, mental models must first be identified or brought to the surface (Senge, 2006). Then the mental models can be challenged and redefined. While mental models can impede learning, they can also accelerate learning when they are brought to the surface, challenged, and then improved. The most crucial mental models in any organization are those shared by key decision makers. If unexamined,

those models limit an organization's actions to what is familiar and comfortable. The ability to reflect on one's own thinking while acting distinguishes the truly outstanding professionals. According to Senge (2006), "reflective practice is the essence of the discipline of mental models" (p. 177). Principals can lead the way in their schools by adopting a new way of thinking about leadership that can then spread to others. Harris (2005a) found that distributed leadership is "unlikely to flourish unless those in formal leadership positions positively promote and support it" (p. 261).

As described by Anfara and Mertz (2006), a theoretical framework pervades nearly all aspects of a research study serving as a lens, "framing and shaping what the researcher looks at and includes, how the researcher thinks about the study and its conduct, and, in the end, how the researcher conducts the study" (p. 189). The conceptual frameworks serving as the lens for this study were distributed leadership and mental models.

Statement of the Problem

These are difficult and demanding times for educators. The complexity of education today requires educational leaders to adapt to the paradigm shift from a hierarchical model of school leadership to a more collaborative model with professionals working together and sharing leadership roles and decisions. Harris (2005a) stated:

The ascendancy of distributed leadership as a powerful concept and theory represents a significant shift in thinking about leaders, leadership, and leadership development. It not only challenges the mythology of individualistic leadership but also reclaims leadership for teachers and others working in schools. (p. 262)

This shift in thinking may present a challenge for some educators. Principals need to reflect on their own leadership practice. By doing so, they will gain a better understanding of their own mental models of leadership and as a result, challenge ways of thinking that may be contributing to ineffective practice. This is a vital skill for school leaders. Reflecting on their own practice and mental models, principals may begin to see the need for a change in the form leadership takes in their schools. This change in leadership could take the form of distributed leadership. Harris & Spillane (2008) stated that how leadership is distributed and with what effect is relatively uncharted territory and that “school redesign is unlikely unless patterns of leadership practice are dramatically altered and flattened” (p. 32). Even with all the interest in the topic, there is still little empirical evidence of distributed leadership in action (Harris, 2005b). The questions of how and why principals choose a distributed view of leadership remain unanswered.

Several researchers have acknowledged the need for more research on distributed leadership in action or more case study examples (Gronn, 2008; Harris, 2005a; Spillane, Halverson & Diamond, 2004) to gain an understanding of how distributed leadership actually looks in practice. One recent case study (Angelle, 2010) led to the development of a model for distributed leadership in middle schools. The model was based on an in-depth study of one exemplary principal and middle school where distributed leadership was practiced on a daily basis. The findings from the case study suggested a model in which “necessary pre-conditions for successful distributed leadership include a strong collaborative leader who practices shared decision making; a culture where trust permeates the organization; and continuous building of strong, positive relationships” (Angelle, 2010, p. 13).

Angelle's (2010) case study is one of few that provided empirical data on what distributed leadership might look like in a school. Empirical data of mental models as a lens for distributed leadership is scant. Therefore, a study examining the two is necessary to build upon the field of distributed leadership.

Purpose of the Study

The purpose of this study was to describe three middle school principals' mental models of distributed leadership and to examine to what extent the three preconditions (leadership practice, relationships, and trust) from Angelle's (2010) model of distributed leadership for middle schools exist in the three principals' schools. With the growing pressure on school leaders to become more collaborative and distribute leadership among teachers and staff in their schools, principals need clear evidence for how to go about examining their own mental models on these issues and how to challenge and improve their current way of thinking. The key is to connect what leaders know (mental models) with what they do (leadership practice and relationships) and how this is evidenced in the school (through trust).

Significance of the Study

Findings from this research will inform principals about effective leadership and ways to move toward a distributed view of leadership. School and district leaders will be better informed of the role mental models play in the understanding of distributed leadership. The research study will provide understanding to the larger field of leadership of the mental models of principals who practice distributed leadership. This knowledge will help district leaders in supporting principals who choose to implement this type of leadership. Study findings can also be used to inform principal preparation programs by providing ways to help new principals

beginning their administrative careers and considering distributed leadership practice. The study will make a connection between beliefs, knowledge and behavior, to much needed evidence about what distributed leadership looks like in the real world of school organizations; thus, providing a framework for school and district leaders seeking to implement distributed leadership.

Research Questions

The guiding questions of this study were how and why do principals distribute leadership as well as what are the necessary organizational constructs for successful distributed leadership? The evidence is growing that this type of leadership is necessary to meet the demands of today's schools. Yet it is still a difficult topic to explain and understand. Perhaps the reason for this is that traditional mental models of school leadership (a hierarchical model of leadership) are preventing new ways of thinking (a more collaborative model of leadership) from taking hold. If the mental processes that guide principals' beliefs and actions can be brought to the surface and examined, then they can possibly be changed. Thus, the following questions addressed the purpose of the study.

1. How do three middle school principals describe their mental models of distributed leadership?
2. What are the teachers' perceptions of distributed leadership in the school (i.e. to what extent do the preconditions of leadership practice and relationships from Angelle's (2010) model of distributed leadership for middle schools exist at the three schools)?
3. How are the mental models of the principals and the perceptions of distributed leadership of the teachers evidenced in the school (i.e. to what extent does the precondition of trust

from Angelle's (2010) model of distributed leadership for middle schools exist at the three schools)?

Definitions of Key Terms

Several terms were used throughout the study and require clear definition to avoid confusion. The definitions listed below represent how these terms were used in this study. Each of the terms will be discussed in greater detail in Chapter 2.

Distributed leadership - leadership function that is stretched over the work of a number of individuals and the leadership task is accomplished through the interaction of multiple leaders (Spillane, Diamond, & Jita, 2003). Distributed leadership is a theoretically grounded framework to study day-to-day leadership practice; it helps practitioners interpret and think about their ongoing leadership practice (Spillane, Halverson, & Diamond, 2001).

Mental models - representations in the mind of real or imaginary situations; the mind constructs "small-scale models" of reality that it uses to anticipate events (Craik, 1967). Mental models are "deeply held internal images of how the world works, images that limit us to familiar ways of thinking and acting" (Senge, 2006, p. 163).

Middle School Concept - a philosophy of education that includes a set of beliefs, ideals, and recommendations that address the nature and unique needs of young adolescents, ages 10-15 (Jackson & Davis, 2000).

Principal - for the purpose of this study principal referred to the head principal of a school.

Limitations

This study examined three middle schools. Findings were limited to the middle school environment. While validity was enhanced by the use of multiple middle school sites, elementary

and high school environments were not included. Additionally, findings may not be applicable to areas of the United States outside of the southeastern region. Any findings applied beyond the three schools studied should be approached with caution. Only middle school principals were studied; therefore, generalizations cannot be made for other administrators or leaders. The study was limited by the honesty of the responses of the principals studied and to the extent they distribute leadership as defined by Spillane. Finally, the study was limited by context; that is, mental models are not the only influence in a principal's behavior. Context may influence behavior as well.

Delimitations

The study was delimited to middle schools in the southeastern region of the United States. Additionally, it was delimited to the principals and teachers in the three schools identified for participation.

Organization of the Study

Chapter One has provided an introduction to this mixed methods case study by exploring the purpose, the problem and the research questions. Chapter Two is an examination of the recent literature on distributed leadership and mental models. Chapter Three provides detailed information on the rationale and type of research methods and procedures used for this study. Chapters Four describes the findings of the study and Chapter Five includes discussion, conclusions, and recommendations for future research.

Conclusion

Schools are faced with a multitude of challenges. School leaders must be prepared to face challenges on a daily basis. In today's complex school environments, leaders must be able

to effectively collaborate with others, reflect on their own practices, and distribute leadership among other staff in their buildings to be successful. One person simply cannot do it all. School leaders must take more of a team approach and work with others to meet demands. While change is not always easy, it can be accomplished and can start with an effective leader who is willing to look into his or her own mental processes and examine what practices are best for the success of a school. This study has been an attempt to examine this process by looking in depth at principals effectively using a distributed view of leadership and the organizational conditions necessary for successful implementation of distributed leadership.

CHAPTER 2

REVIEW OF LITERATURE

The purpose of this study was to describe three middle school principals' mental models of distributed leadership and to examine to what extent the three preconditions (leadership practice, relationships, and trust) from Angelle's (2010) model of distributed leadership for middle schools exist in the three principals' schools. The following research questions addressed the purpose of the study.

1. How do three middle school principals describe their mental models of distributed leadership?
2. What are the teachers' perceptions of distributed leadership in the school (i.e. to what extent do the preconditions of leadership practice and relationships from Angelle's (2010) model of distributed leadership for middle schools exist at the three schools)?
3. How are the mental models of the principals and the perceptions of distributed leadership of the teachers evidenced in the school (i.e. to what extent does the precondition of trust from Angelle's (2010) model of distributed leadership for middle schools exist at the three schools)?

This literature review includes two major areas that were addressed in this study: the conceptual framework of distributed leadership and the conceptual framework of mental models. An overview of the literature in these fields provided a basis to address the key concern of how to connect what leaders know (mental models) with what they do (leadership practice and relationships) and how this is evidenced in the school (through trust). The chapter begins with a description of the search process, including a matrix of sources examined for the literature

review. Next the literature review begins with a discussion of the distributed leadership perspective including an exploration of the definition and the use of the term *distributed leadership*, followed by a discussion of leadership activity and the changing demands faced by schools today. The next section of the literature review summarizes the empirical research in distributed leadership with particular attention to the work of Spillane. Finally, the review examines the conceptual framework of mental models, a review of the middle school concept, and a summary of the chapter.

Search Process

This review of literature began with an extensive search for pertinent literature including empirical studies and scholarly articles on the topics of distributed leadership and mental models. Multiple searches were conducted of educational literature databases including ERIC and Education Full Text through the library website of the University of Tennessee. Searches provided sources that included journal articles, books, book chapters, dissertations, and theses. The main terms used to search for relevant articles were: distributed leadership, distributed perspective, mental models, and middle school concept. Following multiple searches, over eighty sources were collected and studied.

Thirty-four articles on distributed leadership were collected and examined for this literature review. The majority of journal articles on distributed leadership were theoretical in nature (a total of 23 including one extensive literature review). The empirical studies analyzed for this literature review varied in the research methods used. The majority, five studies, were qualitative and used mainly interviews, observations, and document collection. Two studies used mixed methods and typically included surveys or questionnaires for the quantitative data

and interviews and observations for the qualitative data. Four studies were quantitative and used questionnaires to obtain data. In their review of literature on distributed leadership, Bennett, Wise, Woods, & Harvey (2003) found mainly qualitative case studies. The nature of distributed leadership lends itself to the use of qualitative or mixed methods research because it is best understood in the natural environment.

Twenty scholarly articles on mental models were examined for this chapter. Of those articles, there was a fairly even split in the types of research methods used. Eight studies were qualitative, seven studies were quantitative, and five studies were theoretical in nature. One explanation for this diversity in methods used was probably related to the fact that mental models are studied across many different areas, from psychology to education to business. While many articles were found on distributed leadership and on mental models, it is relevant to note that to date, no articles were found describing studies examining distributed leadership and mental models together.

Matrix of Sources

As outlined in Boote and Beile (2005), “a sophisticated literature review is the foundation and inspiration for substantial, useful research” (p. 3). In order to add to the existing body of research on a topic, a researcher needs to understand what has been done before. This study sought to add to the growing literature on distributed leadership; therefore, a thorough review of the literature was necessary to understand what research had been conducted and what had been learned to this point. The main sources used for the review of literature were organized into a matrix summarizing the reference, sample, research methods, and design (see Table 1).

Table 1

Empirical and Theoretical Studies in Review of Literature

Reference	DL/MM	Sample	Method	Design
Angelle (2010)	DL	One middle school in East TN	Qualitative	Case study
Askill-Williams (2007)	MM	105 third-year undergraduate students in Australia	Qualitative	Exploratory
Bennett (2003)	DL	DL literature from 1996-2002	Theoretical	Review of literature
Camburn (2003)	DL	114 elementary schools; 407 leaders	Quantitative	Descriptive
Chang (2007)	MM	7 th and 9 th grade biology students in Taiwan	Qualitative	Exploratory
Chrispeels (2008)	MM	One K-8 district in California, five elementary schools, five principals, superintendent, six central office staff	Qualitative	Case Study
Copland (2003)	DL	16 schools (4 high schools, 11 elementary, one K-8).	Mixed methods	Descriptive; exploratory
Fernandez-Berrocal (2006)	MM	48 3 rd -6 th grade students in Spain	Quantitative	Experimental
Gronn (2000)	DL	147 psychology students at a Swiss university	Theoretical	Analysis of research
Gronn (2002)	DL		Theoretical	Analysis of research
Gronn (2008)	DL		Theoretical	Analysis of research
Gurtner (2007)	MM		Quantitative	Experimental
Halverson (2006)	DL	3 previous studies	Qualitative	Exploratory
Harris (2003)	DL		Theoretical	Analysis of research
Harris (2005)	DL		Theoretical	Analysis of research
Harris (2005)	DL		Theoretical	Analysis of research
Harris (2007)	DL		Theoretical	Analysis of research
Harris and Spillane (2008)	DL	82 first year Kindergarten student teachers	Theoretical	Analysis of research
Horppu (2004)	MM		Mixed Methods	Descriptive; exploratory

Table 1 Continued

Reference	DL/MM	Sample	Method	Design
Hulpia (2009)	DL	46 secondary Schools; 2198 participants	Quantitative	Descriptive
Hulpia (2010)	DL	Four secondary schools with high committed teachers; four secondary schools with low committed teachers	Qualitative	Comparative analysis
Janson (2009)	DL	18 undergraduate students	Theoretical	Analysis of research
Johnson (2008)	MM		Theoretical	Analysis of research
Kim (1993)	MM		Theoretical	Analysis of research
Kim (2008)	MM		Quantitative	Descriptive
Lambert (2002)	DL	41 participants 11 schools in eastern England (4 secondary, 2 middle, 5 elementary)	Theoretical	Analysis of research
Lashway (2003)	DL		Theoretical	Analysis of research
Lawson (1999)	MM		Theoretical	Analysis of research
Leithwood (2008)	DL		Theoretical	Analysis of research
Lindahl (2008)	DL		Theoretical	Analysis of research
Linn (2007)	MM		Qualitative	Exploratory
MacBeath (2005)	DL		Mixed methods	Exploratory; descriptive
Mason-Mason (2000)	MM	33 participants in 3 countries.	Quantitative	Descriptive
Mayrowetz (2008)	DL	12 eighth grade students	Theoretical	Analysis of research
Oliver (2001)	MM		Qualitative	Case Study
Reynolds (2006)	MM	Random sample of 1,000 students taking distance learning in the UK	Theoretical	Analysis of research
Richardson (2007)	MM		Quantitative	Descriptive
Ruff and Shoho (2005)	MM	3 elementary principals	Qualitative	Collective case study; schema analysis
Seel (2001)	MM	19 12 th grade students	Quantitative	Descriptive
Sheppard (2010)	DL	2029 teachers, 136 schools, 2 districts in Canada (94% participation rate)	Quantitative	Descriptive; path analysis

Table 1 Continued

Reference	DL/MM	Sample	Method	Design
Smylie (2007)	DL	6 secondary schools, 3 year longitudinal study in 2 mid- Atlantic states	Qualitative	Comparative case study
Southworth (2002)	DL		Theoretical	Analysis of research
Spillane (2001)	DL		Theoretical	Analysis of research
Spillane (2003)	DL		Theoretical	Analysis of research
Spillane et al. (2004)	DL		Theoretical	Analysis of research
Spillane (2004)	DL		Theoretical	Analysis of research
Spillane (2005)	DL		Theoretical	Analysis of research
Spillane (2009)	DL	One mid-size urban school district in the southeastern United States (48 schools)	Qualitative	Case study
Srivastava (2006)	MM	60 parents in India	Qualitative	Exploratory
Thomas (2001)	MM	27 education majors in first elementary science methods course	Qualitative	Exploratory
Watson and Scribner (2007)	DL		Theoretical	Analysis of research
Weber (1999)	MM		Theoretical	Analysis of research
Woods (2009)	DL		Theoretical	Analysis of research
Wright (2008)	DL	13 principals in one school district	Qualitative	Comparative case study

Note. DL = Distributed Leadership; MM = Mental Models.

Distributed Leadership

Much has been written in recent years about the concept of distributed leadership. Some see it as “an idea whose time has come” (Gronn, 2000, p. 333). In the past, the study of school leadership focused mainly on the traits and behaviors of the formal leader, usually the school principal. Today’s demands require a new perspective that examines leadership at the level of

the school. Spillane et al. (2004) point out that “while it is generally acknowledged that where there are good schools there are good leaders, it has been notoriously difficult to construct an account of school leadership, grounded in everyday practice, that goes beyond some generic heuristics for suggested practices” (p. 4). According to Spillane et al., (2001),

The distributed leadership perspective provides a frame that helps researchers build evocative cases that can be used to help practitioners interpret and think about their ongoing leadership practice. By making the “black box” of school leadership practice more transparent through the generation of rich knowledge about how leaders think and act to change instruction, a distributed perspective can help leaders identify dimensions of their practice, articulate relations among these dimensions, and think about changing their practice. (p. 27)

Understanding what leaders do is important; however, to fully understand school leadership, the how and why must be examined as well. The concept of distributed leadership represents a shift in thinking about leaders, leadership, and leadership development; it challenges the mythology of individualistic leadership (Harris, 2005a). With the increased emphasis on accountability and increased demands on school leaders, distributing leadership in schools is a practical solution to a pressing problem.

Distributed Leadership as a Conceptual Framework

In 2004, Spillane et al. outlined a distributed perspective on leadership, a conceptual framework for investigating leadership practice. Distributed leadership is a conceptual tool for thinking about school leadership and reflecting on one’s own practice (Spillane, 2005). In 2001, Spillane et al. explained,

With respect to empirical research on leadership, the distributed leadership perspective offers a theoretically grounded framework for studying day-to-day leadership practice, enabling investigations of practice to go beyond documenting lists of strategies that leaders use in their work. It frames inquiry into leadership activity so that we can move beyond leaders' and teachers' accounts to develop more integrative understandings of leadership as a practice. (p. 27)

The distributed perspective of leadership is foremost about activity rather than any one role or position. Looking at leadership practice is more important than looking simply at the work of one individual. Identifying tasks is essential because by studying the execution of tasks you can analyze “the *how* as distinct from the *what* of school leadership” (Spillane et al., 2001, p. 24). By framing an analysis of leadership practice—and developing rich case studies of that practice—the distributed leadership perspective is a tool that can enable change in leadership activity (Spillane et al., 2004). An increasing number of recent studies cite distributed leadership or distributed perspective as a conceptual framework for studying school leadership and management (Angelle, 2010; Copland, 2003; Hulpia & Devos, 2010; Hulpia, Devos & Rosseel, 2009; Sheppard, Hurley & Dibbon, 2010; Smylie, Mayrowetz, Murphy & Seashore Louis, 2007; Spillane, Healey & Parise, 2009).

Perspectives

While distributed leadership has been discussed widely in recent years, the distributed leadership perspective is not a new concept. In 1954 Gibb posed the possibility of leadership displaying a distributed pattern or configuration (Gronn, 2000, 2002; Harris, 2005a). In the 1970s organizational theorists and researchers paid increased attention to models of situated

cognition and the patterns of distribution. From the mid-1980s onward, research on school leadership has shifted from a focus on a single leader, the school principal, to a focus on the leadership activities of not only the principal, but to leadership exercised by teachers and others in the school community as well (Camburn, Rowan & Taylor, 2003).

The term, *distributed leadership*, has many definitions and interpretations and can therefore be unclear or confusing. Most frequently quoted in the current literature, Spillane (2005) describes distributed leadership as “first and foremost about leadership practice rather than leaders or their roles, functions, routines, and structures; leadership practice is viewed as a product of the interactions of school leaders, followers, and their situation” (p. 144). Distributed leadership implies a social distribution of leadership where the leadership function is stretched over the work of a number of individuals and where the leadership task is accomplished through the interaction of multiple leaders (Spillane et al., 2003).

Other definitions of distributed leadership include “the sharing, the spreading, and the distributing of leadership work across individuals and roles across the school organization” (Smylie et al., 2007, p. 470). Sheppard et al. (2010) defined distributed leadership as a shared leadership responsibility of both formal leaders and teacher leaders. Watson and Scribner (2007) add to the discussion of defining distributed leadership by pointing out what it is not--delegation of tasks or dividing responsibilities according to role.

A distributed perspective of leadership is leadership practice as a product of the joint interactions of school leaders, followers, and aspects of their situation such as tools and routines (Spillane, 2006). Distributed leadership is more than shared leadership and more than the activities of one individual. Distributed leadership is about utilizing the knowledge and expertise

of everyone in the school. Harris (2005a) explains, “engaging many people in leadership activity is at the core of distributed leadership in action; it is where leadership and organizational growth collide and by definition it is dispersed or distributed” (Harris, 2005a, p. 258). Distributed leadership is not something done by an individual to others rather it is an emergent property of a group or network of individuals in which group members pool their expertise (Harris, 2005a). Harris and Spillane (2008) describe distributed leadership as an analytical frame for understanding leadership practice and can serve as a tool to offer schools the opportunity to stand back and think about exactly how leadership is distributed and the difference made or not by that distribution.

Mayrowetz (2008) identified four common usages of the term: *distributed leadership*. The first use is as a theoretical lens for looking at the activity of leadership. The other three uses of the term are prescriptive for how sharing leadership in schools can improve practice: sharing leadership in a more democratic fashion, distributing leadership to increase efficiency and effectiveness, and building human capacity. According to Mayrowetz (2008) using a distributed perspective requires two shifts in thinking. The first requires researchers to investigate leadership at the level of the school, rather than focusing on one individual. The second shift in thinking requires attention to be focused on interactions among educators and the context.

Bennett et al. (2003) conducted a review of literature on distributed leadership studies through 2002. In their investigation, they found the concept of distributed leadership had a variety of meanings and highlighted three distinctive elements. First, distributed leadership highlights leadership as “an emergent property of a group or network of interacting individuals” (p. 7). Second, distributed leadership suggests “openness of the boundaries of leadership” (p. 7).

Third, distributed leadership entails the view that “varieties of expertise are distributed across the many, not the few” (p. 7).

Changing Demands

In the twentieth century, decades of research focused on leaders’ traits (Northouse, 2007). According to Camburn et al. (2003) from the mid-1980s onward, the focus of school leadership research changed to include not only the leadership activities of the school principal but also the leadership activities of teachers, external change agents, and others. Camburn et al. (2003) found “out of this research emerged a new vision of effective leadership, one in which multiple school members are seen as exercising powerful instructional leadership, in order to effect programmatic change and instructional improvement” (p. 348). This new vision is of leadership that is distributed, rather than a model of one, single heroic leader. Wingfield, Reese, & West-Olatunji (2010) report, “research on schools has suggested that leadership is not the sole purview of the school principal; other professionals play vital roles in leading instructional innovation” (p. 115).

The problem with one “heroic” leader is that with today’s challenges and increased demands, one person simply cannot do it all. Some believe the job of school principal has become virtually impossible for one person to undertake alone (Lashway, 2003). In today’s schools, multiple people have various areas of expertise and the interactions between and among these different leaders can accomplish much more than one person alone. Angelle (2010) stated “the complexity and size of school systems today are such that one leader cannot meet the demands of daily tasks and problems. Thus, a singular leader-centric school cannot operate as efficiently as one in which leadership roles are distributed” (p. 2). Angelle (2010) went on to say

“a linear, hierarchical model of leadership gives way to a model of leadership built on task expertise and the context of the problem at hand. Thus, distributed leadership focuses on the goals of the group, rather than the actions of one” (p. 3).

Moreover, Hulpia et al. (2009) concurred saying that “because of the complexity of the current educational setting, the traditional single-person leadership paradigm is questioned” (p. 1013). Leadership tasks have become increasingly complex in recent years; therefore, there is a tendency to move away from the heroic leadership style to an approach that stresses the distribution of leadership among the school team. Hulpia and Devos (2010) also explained that “due to increased complexity in the educational system, it becomes probable that no one individual has all the knowledge, skills, and abilities that would enable him/her to accomplish all of the leadership functions, without distributing them among a team” (p. 565).

According to Spillane (2005) the hero theory of leadership is problematic for two reasons. The first reason is that school principals do not “single-handedly lead schools to greatness; leadership involves an array of individuals with various tools and structures” (p. 143). The second reason the hero theory is problematic is the inattention to leadership practice. The focus is mostly on the *what* of leadership (structures, routines, functions, roles) rather than the *how* of school leadership (the daily performance of leadership routines, functions and structures). Leadership practice includes what people do, but also how and why they do it. Harris (2007) contributes to the discussion by pointing out that,

The model of the single leader is gradually being eroded within schools, as the demands upon one individual are too great. Schools are restructuring leadership responsibilities through the creation of teams, emphasis placed upon teachers as leaders. Many schools

are actively trying to create distributed leadership by reallocating responsibility and authority more broadly with the school. (p. 321)

Sheppard et al. (2010) stated that a growing number of researchers have come to realize that meaningfully leading schools requires more than the leadership of a single formal leader. Distributed leadership represents a shift from a past that focused on positions and individuals as the keys to leadership (Watson & Scribner, 2007). Lambert (2002) stated, “the days of the principal as the lone instructional leader are over” (p. 37). Substantial participation of other educators is required (Wright, 2008).

Empirical Studies

The concept of distributed leadership has been widely addressed in recent years. Less well documented are empirical studies of distributed leadership in action. Bennett et al. (2003) noted relatively few empirical studies existed. Harris (2005b) argued that more research is needed that focuses on distributed leadership in schools.

Spillane is perhaps the most quoted and prolific author on distributed leadership. While much of Spillane’s work is conceptual, it is strengthened by his empirical study. The Distributed Leadership Study was Spillane’s four-year longitudinal study of thirteen elementary schools in Chicago. The results of the study suggested three ways in which leadership might be stretched over the practice of leaders: collaborated distribution, collective distribution, and coordinated distribution (Spillane, 2004). Collaborated distribution refers to “leadership practice where leaders work together to execute a particular leadership function where one leader’s practice becomes the basis for another leader’s practice and visa-versa; there is a reciprocal interdependency” (p. 170). Collective distribution refers to “the practice of two or more leaders

who work separately but interdependently in pursuit of a shared goal involving interdependent activities that produce a common practice” (p. 170). Coordinated distribution refers to “leadership practice in which different leadership tasks that must be performed in a particular sequence for the execution of some leadership function—the interdependency among tasks and the leaders responsible for executing these tasks, is sequential” (p. 171). Each of these three types of distributions influence the way leaders interact and depend on each other and are meaningful in investigating how leadership expertise is distributed.

Spillane et al. (2001) developed a definition of distributed leadership around four ideas: leadership tasks and functions, task enactment, social distribution of task enactment, and situational distribution of task enactment. Leaders engage in large-scale organizational tasks, (macro functions) and day-to-day work (micro tasks). Macro functions are typically made up of multiple micro tasks, which are crucial to study because these tasks show the *how* of leadership practice. To investigate leadership practice from a distributed perspective, researchers must understand how leaders define, present, and carry out the micro tasks and how they interact with others in the process. Investigating leadership practice must involve both observing practice as it happens and asking the leaders about the observed practice to distinguish espoused theories of practice and theories in use. It is important to understand the knowledge, skills, and expertise that the leaders bring to the execution of the task.

Leadership tasks are often distributed among multiple leaders. Spillane et al. (2001) explain “the collective properties of the group of leaders working together to enact a particular task lead to the evolution of a leadership practice that is potentially more than the sum of each individual’s practice” (p. 25). Leadership practice is situated in an environment that contains

artifacts and tools, which are externalized representations of ideas used by practitioners. The artifacts, tools, and organizational structures are defining components of the leadership practice. Paying attention to the social interactions, not simply the actions of individual leaders, is a critical consideration in studying school leadership and management.

Evidence of distributed leadership. An early study that provided evidence of distributed leadership in schools was conducted by Camburn et al. (2003) who studied distributed leadership in the context of elementary schools' adoption of comprehensive school reforms in more than 100 schools in the United States. The researchers utilized survey data from the second year of the reform implementation. The instruments used were the School Leader Questionnaire (SLQ) and the School Characteristics Inventory (SCI). The results revealed that elementary school leadership is typically provided by teams of individuals, rather than by a single leader. The teams range from three to seven people. Results also showed that staff development may be an effective way to encourage leadership rather than simply defining role expectations.

Another example of distributed leadership in action was a study by Angelle (2010). Angelle conducted an in-depth case study of one exemplary middle school in Tennessee. The case study included interviews with the principal and 25% of the school staff. Angelle identified three themes that shaped the organization: leadership practice, trust, and relationships. Through the rich description and theme development, Angelle moved the idea of distributed leadership further by developing a model of distributed leadership for middle schools with three organizational preconditions (leadership practice, trust, relationships). Angelle's findings "suggest a model in which necessary pre-conditions for successful distributed leadership include

a strong collaborative leader who practices shared decision making; a culture where trust permeates the organization; and continuous building of strong, positive relationships” (p. 13).

Leadership practice. Angelle (2010) pointed out the importance of preconditions in organizations for distributed leadership to be successful. One of the preconditions is leadership practice. Leadership practice is essential to understanding leadership in organizations (Spillane et al., 2004). Leaders’ thinking, behavior, and context need to be considered together. Mayrowetz (2008) stated that researchers studying distributed leadership need to identify what activities constitute leadership. Three main categories of leadership practices supported by various researchers include: setting a vision, developing people, and monitoring instruction (Hulpia et al., 2009; Leithwood, Harris, & Hopkins, 2008; Spillane et al., 2004). Spillane et al. (2004) pointed out “the research challenge in understanding leadership practice is to reconstruct, through observation and interview, whatever links exist between the macro-functions and the micro-tasks of school leadership” (p. 14).

An important part of leadership practice is the context or environment including artifacts and tools. Spillane et al. (2004) defined artifacts as “externalized representations of ideas and intentions that are constitutive of leadership practice” (p. 23). Halverson (2006) referred to artifacts as “the programs, procedures, or policies leaders use and design to influence the practice of others” (p. 3). Halverson goes on to say that well-designed artifacts are discussion groups, collaborative curriculum design efforts, and formative assessment policies. These provide the necessary tools for improving instructional practice. Tools refer to items such as memos, agendas, computer programs, district policies, and teacher evaluation protocols.

Relationships. Angelle's (2010) study found positive relationships were critical to distributed leadership and therefore, the second precondition. Current demands have forced educators to reconsider current boundaries of school leadership (Militello & Janson, 2007). Results-focused practice has led to the promotion of new models of school leadership, including collaborative practices, requiring positive relationships among members of the school community. Hulpia and Devos (2010) found teachers reported being more strongly committed to the school if the leaders were highly accessible, tackled problems efficiently or empowered teachers to participate, and frequently monitored teachers' daily practices. The study found that in schools with highly committed teachers, the leader put much emphasis on personal interactions with teachers. In schools with low-committed teachers, the leadership was "vague and there was no dynamic interaction between leaders and followers and their situational contexts" (p. 572). As positive relationships are built, teachers feel empowered to make decisions and take on leadership roles (Angelle, 2010).

Militello and Janson (2007) investigated how school counselors and principals perceive their professional relationships with each other. Principals and school counselors are uniquely placed to engage in new leadership structures and activities, such as distributed leadership, however, this is dependent on the current viewpoints and perceptions of school counselors and principals. They are key agents in schools, with pivotal roles influencing student learning, creating an inclusive, positive school environment, developing norms of collegiality, and influencing school organization, activities, and policies (Militello & Janson, 2007). Militello and Janson (2007) explain further by saying "a collaborative relationship between counselors and principals with shared educational goals is not only essential to school leadership but necessary

to bolster the influence of the other, as well as the overall, leadership capacity within the school” (Militello & Janson, 2007, p. 410).

Price (2012) studied principal and teacher interactions and how affective relationships shape principal and teacher attitudes. Research has shown atmospheres of trust, shared vision, and openness as well as interpersonal relationships between principals and teachers help to create positive school climates (Price, 2012). The results of Price’s study found that principals’ relationships with their teachers affect principals’ and teachers’ satisfaction, cohesion, and commitment levels. These relationships impact the overall school environment. Price explained, “supportive administrators enhance collegial support and cohesion among staff, a process that feeds back to form even stronger trusting relationships” (p. 46). Price also found that when principals share power on school decisions this increases the frequency of interaction between principals and teachers, which magnify the relationship effects. Sharing decision-making power with teachers increases job satisfaction and cohesion levels for principals.

Trust. Angelle’s (2010) third precondition is trust. Hoy and Tschannen-Moran (1999) define trust as “an individual’s or group’s willingness to be vulnerable to another party based on the confidence that the latter party is benevolent, reliable, competent, honest, and open” (p. 189). Baier (1986) defined trust as reliance on others’ competence and their willingness to look after rather than harm what is entrusted to their care. Distrust produces feelings of anxiety and insecurity.

Tschannen-Moran and Hoy (2000) conducted a review of literature on trust as it relates to relationships within schools. The multidisciplinary review examined theoretical and empirical articles over a forty-year span. One conclusion from the review is that trust is fundamental to

functioning in our society and a vital element in well-functioning organizations. Trust is necessary for effective cooperation and communication, which are the foundations for cohesive and productive relationships. The review by Tschannen-Moran and Hoy (2000) identified key elements of trust, all of which are important aspects of trust relations in schools and all form a coherent construct of trust. The elements include willingness to risk vulnerability, confidence, benevolence, reliability, competence, honesty, and openness. Principals play a vital role in promoting the key elements and cultivating trust in schools (Cosner, 2010). Principal leadership that fosters trust can help to develop teacher commitment, a necessary condition for facilitating professional community in schools (Bryk, Camburn, & Seashore Louis, 1999).

Adams and Forsyth (2009) tested a theoretical model of the nature and function of trust of schools. The study examined trust as a construct manifested through parent and teacher trust perceptions. The results of their study revealed that trust provides a lubricant for effective school performance by having more direct influence on social conditions than on actual performance. Trust was shown to reduce the effect of the negative relationship between poverty and school achievement.

Smylie et al. (2007) examined the relationship between trust and distributed leadership and provided evidence to support their theoretical argument from longitudinal fieldwork examining distributed leadership in two case studies of secondary schools. The results indicated three points: trust is important in the development of distributed leadership, the relationship between trust and distributed leadership development is dynamic and reinforcing, and administrative leadership, particularly principal leadership, is crucial to the development of distributed leadership (Smylie et al., 2007).

Summary of Distributed Leadership

Distributed leadership provides a promising framework for understanding leadership at the level of the school, rather than focusing on the actions of one individual. The increasing demands on schools have led to a need for a shift in thinking about school leadership. One person can no longer lead a school single-handedly. Multiple people must work collaboratively and depend on each other's expertise to accomplish all the goals of today's schools. Distributed leadership provides a frame for thinking about this leadership practice and helping leaders examine and reflect on their own practices. While some empirical evidence exists, more is needed to show how distributed leadership actually works in schools and to encourage the shift in thinking that is required for leaders to let go of some power, build trust, and form relationships to create a collaborative environment where leadership work is stretched over the work of many.

Mental Models

According to Spillane et al. (2004), to understand leadership practice, leaders' thinking, behavior and situation need to be considered together. While distributed leadership provides a framework for investigating leaders' behaviors and the situation, mental models provide a framework for investigating leaders' thinking. Mental models have been studied across multiple disciplines and over many decades. Philosophers have discussed mental models for centuries, going back to Plato's parable of the cave (Senge, 2006).

Several definitions of mental models have emerged through the years. According to Johnson-Laird (1983), mental models are the basic structure of cognition. Mental models are specific knowledge structures that are constructed to represent a situation through the use of

generic knowledge (Ruff & Shoho, 2005). Kim (1993) described mental models as representations of a person's view of the world, including explicit and implicit understandings.

Senge's (2006) seminal work on systems thinking describes mental models as deeply ingrained assumptions, generalizations, or images that influence how we understand the world and how we take action. Mental models are representations of reality that people use to understand specific phenomena. Senge describes five disciplines necessary to cultivate learning organizations: systems thinking, personal mastery, mental models, building shared vision, and team learning.

Mental models can be simple generalizations or complex theories. Mental models are active. They shape how we act. Our mental models determine how we make sense of the world and how we take action. Senge (2006) explained, "the problems with mental models lie not in whether they are right or wrong; by definition, all models are simplifications. The problems arise when mental models become implicit or when they exist below the level of our awareness" (p. 166). When we are unaware of our mental models, they are unexamined and remain unchanged. As the world changes, the gap widens between our mental models and reality, and this leads to increasingly counterproductive actions (Senge, 2006). New ideas and insights fail to get put into practice because they conflict with our current mental models which limit us to familiar ways of thinking and acting (Senge, 2006). Senge explained "the discipline of managing mental models--surfacing, testing, and improving our internal pictures of how the world works—promises to be a major breakthrough for building learning organizations" (p. 163).

While Senge is one of the most frequently quoted sources of the definition of mental models, many others have contributed to the understanding of the concept. Mental models

represent the assumptions, generalizations, and images that not only influence how people understand the world, but also the actions they take based on that understanding (Weber, 1999). Mental models are real, deeply ingrained and powerful (Weber, 1999). They influence how one thinks and acts, are constantly evolving, and can be incorrect, incomplete, or inaccurate. Because mental models are sometimes inaccurate, they can limit a person's willingness or ability to change (Reynolds et al., 2006).

Fernandez-Berrocal and Santamaria (2006) defined mental models as "psychological representations of real-life, hypothetical, or imaginary situations" (p. 231). They can be constructed from perception, imagination, or the comprehension of discourse. Linn, Sherman, and Gill (2007) explained that understanding the power of mental models and then examining them as lenses through which we view the world provide opportunity for growth and change. Oliver and Hannafin (2001) pointed out that,

A mental model is a representation of one's personal understanding of a system or concept. It may consist of declarative knowledge, procedural knowledge, or assumptions. Functionally, mental models are used both to explain and predict various phenomena; structurally, they are dynamic and can be spawned instantaneously to reflect emerging representations of complex and novel situations. Mental models are often structurally ingrained and thus resilient to change because they are tied to everyday experience and years of confirmation. (p. 6)

Seel (2001) described mental models as qualitative mental representations which are developed on the basis of available world knowledge aimed at solving problems or acquiring competence in a specific area. According to Srivastava (2006), mental models are partly

acquired through experience and learning, and partly through inter-generational transfers of values and beliefs. Today's definitions of what a principal is and does are embedded in a mental model that has come from years of tradition and deeply ingrained beliefs (Lawson, 1999).

Mental models are our “naturally occurring cognitive representations of reality, or ways in which reality is codified in our understanding of it” (Johnson, 2008, p. 86). As we experience a new phenomenon, we assemble information into a mental model that constitutes a simplified representation of that phenomenon. This model then becomes the basis for our perception, analysis, understanding, and behavior toward the object in question. We think and act through our mental models. Johnson (2008) points out the difference between effective leaders and ineffective leaders are their mental models, the way they view and deal with their world. The development of effective leaders must focus on enhancing or changing their mental models, rather than relying on learning new information. The most promising method to date (in developing effective mental models) is through “context-specific experiences that challenge existing meaning structures, and that force the learner to critically reflect on the assumptions underlying existing mental models, as well as develop new and more effective ways of dealing with the challenges being faced” (Johnson, 2008, p. 86).

Changing Mental Models

Defining and describing mental models is important; however, the more critical question is how does one change his or her mental models? Senge (2006) said if mental models could impede learning (trapping organizations into outdated practices) they can also help accelerate learning (by bringing mental models to the surface and challenging them so they can be improved). Because mental models are sometimes inaccurate or antiquated, they can limit a

person's willingness or ability to change. This happens when the mental models are tacit or when they exist below the level of awareness. To counteract this phenomenon in schools, professional development efforts must provide teachers with consistent, accurate images and assumptions in classroom practice (Reynolds et al., 2006).

To change mental models people need to use skills of reflection and skills of inquiry (Senge, 2006). Skills of reflection slow down our thinking processes so we can become more aware of how we form our mental models and the ways they influence our actions. Inquiry skills concern how we operate in face-to-face interactions with others, especially in dealing with complex issues and conflicts. The core of the discipline of mental models includes the following,

- Facing up to distinctions between espoused theories (what we say) and theories-in-use (what we do)
- Recognizing “leaps of abstraction” (noticing our jumps from observation to generalization)
- Exposing the “left-hand column” (articulating what we normally do not say)
- Balancing inquiry and advocacy (skills for effective collaborative learning)

(Senge, 2006, p. 176)

Johnson (2008) discussed changing mental models “through disorienting events, ones that challenge the current mental model, through receiving feedback on both performance and style, through critically reflecting on one's behavior and the assumptions underlying it, and developing new and more effective ways of understanding and acting upon the environment” (p.

86). When the current mental model is incapable of handling the current situation, the person struggles to develop a new model that will better handle the situation. Change to existing mental models happens when a person cannot explain unexpected or inconsistent outcomes or when the greater institutional context changes (Srivastava, 2006).

Changing mental models brings with it implications for organizations. Because beginning teachers bring their prior knowledge and beliefs to their learning in a teacher education program, teacher education programs should provide students with assistance and a supportive environment in which to reflect upon their existing practical knowledge and to reconstruct more elaborate and inclusive knowledge (Horppu & Ikonen-Varila, 2004). Leadership programs should put an emphasis on informational and educational input through workshops and training programs (Johnson, 2008). With growing recognition that principals cannot lead alone and that school leadership teams are essential to school improvement, school leadership teams need to collaborate together about the tasks of leadership and when they do, shared mental models are likely to develop (Chrispeels, Burke, Johnson, & Daly, 2008). These shared mental models could then lead to improvement for all members of the team and the leadership teams at their respective schools. Gurtner, Tschan, Semmer, and Nagele (2007) found a positive relationship between shared mental models and group performance. Professional development and collaboration could be major factors in achieving a shift in thinking for the entire organization.

Uncovering Mental Models

Since researchers have shown the importance of bringing mental models to the surface, to challenge or change them, the next question becomes, how do researchers uncover the mental

models of their participants? Several studies examined for this chapter provided examples of ways to reveal people's mental models. One way to investigate mental models is to ask people to reflect upon the issue at hand in order to make their thinking available for researcher interrogation (Askill-Williams, Murray-Harvey & Lawson, 2007). In a study conducted by Askill-Williams et al. (2007), the participants, third-year teacher education students, completed a 2000-word reflective writing assignment that was used as a source of data to identify indicators of change in their mental models of teaching and learning. The students participated in a project based learning experience in which students were presented with case studies and then had to identify their current state of knowledge, identify what further information was needed, seek out that information, analyze and evaluate the information, and make plans for action (Askill-Williams et al., 2007). After the PBL experience, students wrote the reflective writing assignment, reflecting on the PBL experience and evaluating in what ways this approach to teaching and learning contributed to their professional development. The written reflections were reviewed using NUD*IST software and major themes were identified. A list of words that indicated changing mental models was placed into a spreadsheet. All 105 participants' manuscripts contained one or more of the identified key words of changing mental models. By reducing the rich descriptions of the students' into a manageable form of data, researchers could better understand a complex topic.

Chang (2007) used concept maps to investigate mental models of middle school students. In the study, fourteen junior high students participated in semi-structured interviews with concept mapping to explore their mental models of homeostasis of blood sugar (a major theme in junior high school biology in Taiwan). To create concept maps, students were given small paper

cards that contained specific terms related to the concept of homeostasis of blood sugar as well as blank cards, allowing students to write down their own ideas. The students developed their concept maps while they answered the interview questions. Students' concept maps were compared with an expert map to reveal any differences. The study concluded that concept maps could provide an effective model for students to present their mental models of complex topics.

Mason-Mason and Tessmer (2000) assessed mental models of their adult participants using Pathfinder concept networks technique, troubleshooting tests, and prediction tests. Participants were asked to construct an expert system model of a hydraulic drum braking system. Each of the three measures was administered three times as pretests, midtests, and posttests to assess participants' mental models. Scores suggested that there were small increases from pretest to midtest, after participants studied text and graphics. There was a substantially larger increase in all scores from midtest to posttest when the expert system was constructed. After completing surveys and interviews, the conclusions of the study were that when used as a mindtool, an expert system becomes a process (not an end product) that can facilitate a learning gain. Mental models are forms of learning associated with success in problem solving and higher order learning which can be acquired by the use of mindtools (Mason-Mason & Tessmer, 2000).

Other tools researchers have used to investigate mental models include quantitative instruments, such as the Inventory of Learning Styles (ILS) used by Richardson (2007). Thomas, Pedersen, and Finson (2001) used the Draw-A-Science-Teacher-Test Checklist (DASTT-C) to explore mental models and teacher beliefs. Metaphors can provide a glimpse into mental models

(Linn et al, 2007). Uncovering mental models can provide great insight into principals' thinking as seen in a study by Ruff and Shoho (2005).

Ruff and Shoho conducted a collective case study to provide understanding of instructional leadership through the mental models of three elementary school principals. Ruff and Shoho (2005) utilized a framework by Leithwood (1988) on external influences and principals' mental processes. Leithwood suggested that the "relationship between internal mental processes and principals' practices seems to be a much neglected area of inquiry, yet vital to an understanding of what principals do" (p. 555-556). Ruff and Shoho used a combination of methods to uncover mental models including interviews with each principal, naturalistic observations, observations during a contrived dialectic exercise, purposive observation during a faculty meeting, interviews with teachers about the principal's instructional role, and a review of artifacts.

The findings of the study suggested implications in both the practice of principals and in the preparation of school administrators. According to Ruff and Shoho, "the articulation of the mental models of principals, superintendents, and other school leaders provides the capacity to reveal tacit assumptions that have the potential of expanding or limited organizational capacity and affecting efforts for successful student achievement" (p. 574). Understanding mental models carries with it the promise of "overcoming the basic diseases of the hierarchy" (Ruff and Shoho, 2005, p. 575). Understanding the mental models of principals regarding distributed leadership would have similar implications.

Summary of Mental Models

Mental models are real, ingrained, and powerful. They influence how leaders think and the actions they take. When mental models exist below the level of awareness, they can prevent new ideas and ways of thinking from taking hold, meaning they can hold people or organizations back from making significant change or improvement. With the increasing demands on schools, a shift in thinking is required to promote more collaborative school environments where leadership practice is stretched over the work of many in the school, rather than on one single leader. By uncovering one's mental models and bringing them to the surface, they can begin to be challenged and changed allowing new and better ways to take hold and influencing behavior.

Middle School Concept

Middle schools were introduced in the 1960s. The middle school concept is “a philosophy of education with a special spirit and deep theoretical roots—a set of beliefs about kids, education, and the human experience” (Lounsbury, 2009). As stated in *This We Believe: Keys to Educating Young Adolescents* (National Middle School Association, 2010), “the curriculum, pedagogy, and programs of middle grades schools must be based upon the developmental readiness, needs, and interests of young adolescents. This concept is the heart of middle level education” (p. 5). Middle schools today must meet major challenges that are different than just a few decades ago. Successful middle level schools recognize and implement sixteen characteristics laid out in *This We Believe*. The sixteen characteristics include the following,

- Educators value young adolescents and are prepared to teach them.
- Students and teachers are engaged in active, purposeful learning.

- Curriculum is challenging, exploratory, integrative, and relevant.
- Educators use multiple learning and teaching approaches.
- Varied and ongoing assessments advance learning as well as measure it.
- A shared vision developed by all stakeholders guides every decision.
- Leaders are committed to and knowledgeable about this age group, educational research, and best practices.
- Leaders demonstrate courage and collaboration.
- Ongoing professional development reflects best educational practices.
- Organizational structures foster purposeful learning and meaningful relationships.
- The school environment is inviting, safe, inclusive, and supportive of all.
- Every student's academic and personal development is guided by an adult advocate.
- Comprehensive guidance and support services meet the needs of young adolescents.
- Health and wellness are supported in curricula, school-wide programs, and related policies.
- The school actively involves families in the education of their children.
- The school includes community and business partners. (p. 14)

Teams and collaboration are important components of successful middle schools. The success of teams in middle schools often depends on the administrator's leadership skills (Jackson & Davis, 2000). The Carnegie Council on Adolescent Development reviewed research and experiences of reforming middle schools during the 1990s and in *Turning Points 2000* (Jackson & Davis, 2000) made the conclusion that the leadership team is critical for middle

schools. Important functions of the leadership team include developing and using a school improvement plan, creating a shared vision, setting priorities, developing strategies for action, and monitoring progress. One consistent finding in educational research is that “high-achieving schools have strong, competent leaders” (Jackson & Davis, 2000, p. 156). Jackson and Davis (2000) point out that the understanding of how a middle school principal successfully leads a school is changing. An effective principal is not a manager. A single principal cannot do everything alone. In the past, few principals received training in shared leadership and decision making and most worked in settings where they were expected to command from above and concentrate on managerial issues rather than on teaching and learning (Jackson & Davis, 2000). With more and more research showing the importance of collaboration and shared leadership and the increasing demands placed on school leaders, middle school principals need to learn to distribute leadership among others in their schools.

Middle schools are an ideal environment for studying distributed leadership. Because of the history and attributes of middle schools, such as fostering team leadership, working together collaboratively and distribution of tasks, middle schools are on the forefront of leading all schools in leadership change.

Chapter Summary

One problem discovered by studying the current literature appears to be the multiple ways the term *distributed leadership* is used. The term is often confused with similar terms such as shared leadership, collaborative leadership, and shared decision-making. Some use the terms interchangeably and it becomes less clear what one is really talking about. Researchers need to be clear on the definition they are using. Another problem is the continued lack of empirical

evidence. While the idea of distributed leadership is widely accepted and discussed, there remain few studies of distributed leadership in action despite many researchers stating an urgent need for evidence and for more case study examples. Related to this problem is the lack of a consistent way to measure distributed leadership in schools.

Clear evidence still does not exist showing what principals think and how they go about deciding when, how, and to whom they distribute leadership. Under what circumstances are schools able to implement a distributed perspective? Who is taking on leadership roles in schools today? What kind of impact will this have on students and test scores? How do principals find a balance between holding teachers accountable and letting go of control? These questions remain largely unanswered.

A review of the literature on mental models revealed multiple studies including experimental, descriptive, and qualitative studies across many disciplines. The studies showed the importance of mental models and the potential for bringing about change by examining mental models. Senge (2006) said mental models could be inaccurate and therefore limit a person's willingness or ability to change. Mental models can be changed through reflection and professional development. One's mental models must be examined so they can be challenged and possibly changed, if needed. This is an important piece of the puzzle to making a change toward more distribution of leadership in today's schools. A need exists in the literature to develop a more complete understanding of distributed leadership through the lens of mental models by collecting both quantitative and qualitative data, because each provides only a partial view. While studies exist on distributed leadership and on mental models, to date, there are no

studies combining the two, revealing a gap in the current literature and a need for a study combining both concepts.

This chapter began with an exploration of distributed leadership, what the concept means and how distributed leadership may be a more effective way to lead schools in the 21st century with the increases in demands. Next mental models were discussed and finally the middle school concept and how this provides an ideal environment to study distributed leadership and the mental models of principals in those environments. This review of the literature led to the development of the study topic, the research questions to be asked, and the most appropriate methods to be used, which is the topic of the next chapter.

CHAPTER 3

DESIGN OF THE STUDY

The purpose of this study was to describe three middle school principals' mental models of distributed leadership and to examine to what extent the three preconditions (leadership practice, relationships, and trust) from Angelle's (2010) model of distributed leadership for middle schools exist in the three principals' schools. The following research questions addressed the purpose of the study.

1. How do three middle school principals describe their mental models of distributed leadership?
2. What are the teachers' perceptions of distributed leadership in the school (i.e. to what extent do the preconditions of leadership practice and relationships from Angelle's (2010) model of distributed leadership for middle schools exist at the three schools)?
3. How are the mental models of principals and the perceptions of distributed leadership of the teachers evidenced in the school (i.e. to what extent does the precondition of trust from Angelle's (2010) model of distributed leadership for middle schools exist at the three schools)?

A mixed method, convergent parallel design, multisite case study was selected as the best fit to address the purpose of the study. This chapter begins with a description of the rationale and assumptions for the mixed methods approach, details the mixed methods case study design, details the sites and participants, outlines data collection procedures, explains the data analysis and validity procedures, and describes the role of the researcher. See Figure 1 for a graphic of the study design.

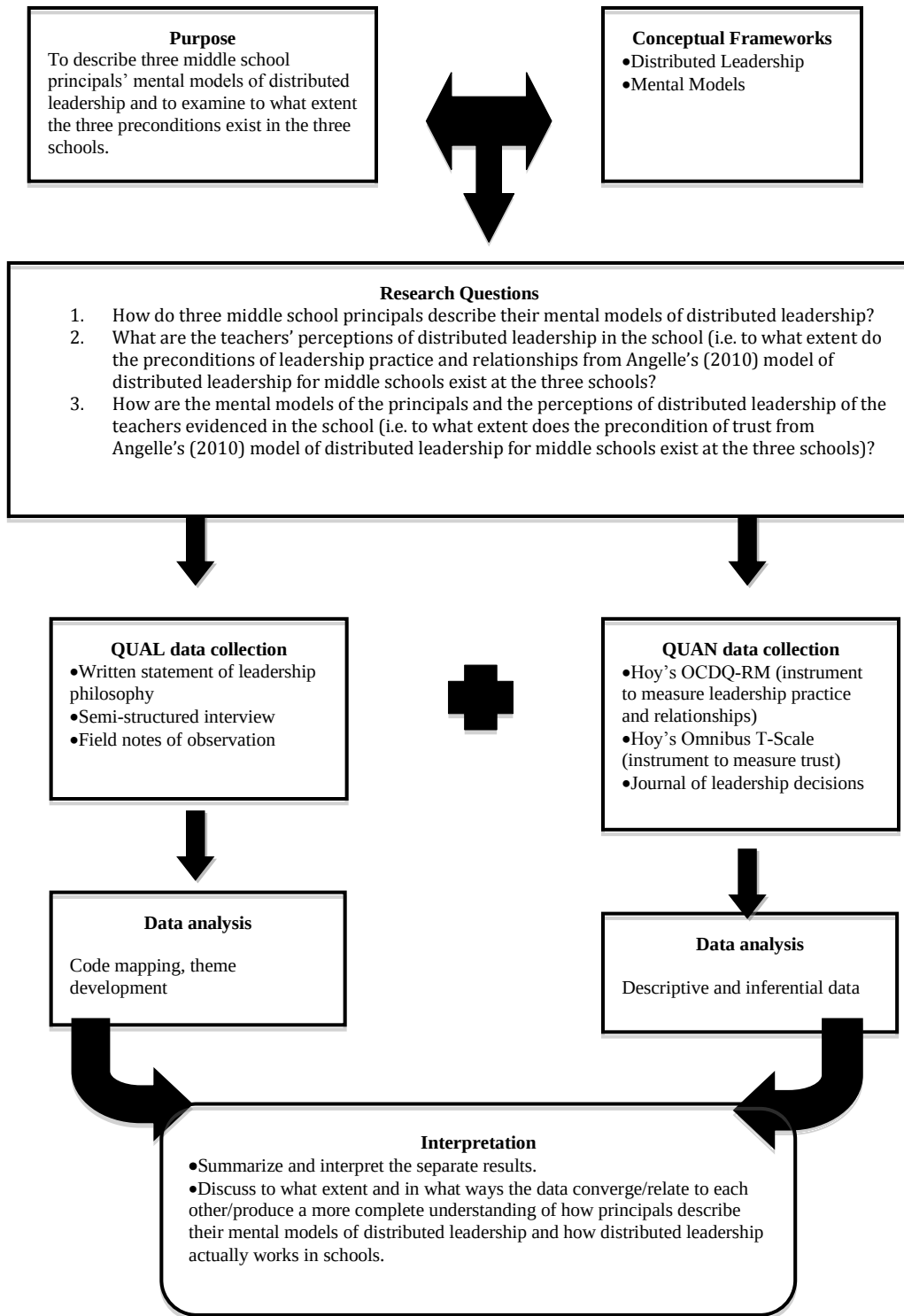


Figure 1. Study Design.

Rationale and Assumptions for Mixed Methods Design

Mixed methods research combines elements of qualitative and quantitative research approaches for the purposes of breadth and depth of understanding and corroboration (Tashakkori & Teddlie, 2010). According to Creswell and Plano Clark (2011), “the complexity of our research problems calls for answers beyond simple numbers in a quantitative sense or words in a qualitative sense. A combination of both forms of data provides the most complete analysis of problems” (p. 21).

Several advantages supported the use of mixed methods design to address the purpose of this study. Mixed methods research can address research questions that other methodologies cannot (Creswell & Plano Clark, 2011; Taskakkori & Teddlie, 2003). Mixed methods research provides strengths that offset the weaknesses of both quantitative and qualitative research (Bryman, 2006; Creswell & Plano Clark, 2011; Tashakkori & Teddlie, 2003). Depth was provided by conducting a case study and breadth provided through the use of quantitative instruments, together giving more accurate and complete results. By using mixed methods, multiple tools of data collection were available to use, rather than those restricted to quantitative or qualitative methods only. Mixed methods research leads to multiple inferences, which confirm or complement each other (Tashakkori & Teddlie, 2003).

Two other advantages of using mixed methods research include triangulation and complementarity. Triangulation refers to using multiple methods to offset or counteract biases in order to strengthen the validity of results by seeking convergence or corroboration of results from the different methods (Greene, Caracelli, & Graham, 1989). Morse (1991) described methodological triangulation as using at least two methods to address the same research problem

“to ensure that the most comprehensive approach is taken to solve a research problem” (p. 120).

Complementarity refers to using both qualitative and quantitative methods to measure overlapping but different facets of a phenomenon, providing a deeper understanding of the phenomenon (Greene et al., 1989). In this study, I used qualitative interviews, written statements of leadership philosophy, and field notes from observations to measure how principals described their mental models of distributed leadership combined with quantitative questionnaires and journal entries of leadership decisions to measure the extent of the preconditions in the school.

While several advantages supported the use of mixed methods for this study, challenges also had to be considered. Conducting a mixed methods study requires skills in both quantitative and qualitative data collection and analysis and therefore can be difficult to carry out (Creswell & Plano Clark, 2011; Johnson & Onwuegbuzie, 2004). A mixed methods study also requires extensive time and resources. While the challenges of a mixed methods study are considerable, the advantages surpassed the disadvantages and ultimately the decision was made to employ a mixed method design.

Creswell and Plano Clark (2011) recommend that researchers who use mixed methods should be aware of and articulate their philosophical assumptions. The philosophical paradigm most typically associated with mixed methods is pragmatism. In the worldview of pragmatism, the focus is on the consequences of the research, the questions asked rather than the methods used, and the use of multiple methods of data collection to address the problems under study (Creswell & Plano Clark, 2011; Johnson, Onwuegbuzie & Turner, 2007). Pragmatism is a philosophy of practicality. Researchers collect data using the best methods to address the research questions. Because multiple methods best addressed the questions in my study, and

pragmatism supports the use of both qualitative and quantitative research methods in the same study, pragmatism is the paradigm that works best for my study.

Design of the Study

The design of this study was a mixed method, convergent parallel design, multi-site case study. The research design is the “logic that links the data to be collected (and the conclusions to be drawn) to the initial questions of study” (Yin, 2003, p.19). A multi-site case study design was chosen because the evidence from multiple cases is considered more compelling and more robust (Herriott & Firestone, 1983). Case studies can be based on qualitative data, quantitative data, or a mix of the two (Yin, 2003). Mixed methods design allows use of both methods in one study.

Case Study Design

A case study is typically employed to “gain an in-depth understanding of the situation and meaning for those involved” (Merriam, 1998, p. 19). According to Yin (2003), “case studies are the preferred strategy when ‘how’ or ‘why’ questions are being posed, when the investigator has little control over events, and when the focus is on a contemporary phenomenon within some real-life context” (p. 1). The case study design was selected as the best fit for this study because of the research questions selected and the desire to obtain depth of understanding.

Case study designs usually include at least two sources of evidence: direct observation of the events being studied and interviews of the persons involved in the events (Yin, 2003). A major strength of case study research is the ability to look in-depth at a real-life situation, resulting in rich, thick data. Utilizing multiple sources of data is another strength of case studies. Multiple-site case studies have advantages over single site case studies in that they are

considered more compelling and robust (Yin, 2003). Multiple cases enhance the external validity or generalizability of findings and allow for cross-case analysis (Merriam, 1998).

Convergent Parallel Design

As suggested by Creswell and Plano Clark (2011) there are four key decisions involved in choosing an appropriate mixed method design in a study. The first decision is the level of interaction between the qualitative and quantitative strands. In this study an independent level of interaction was implemented, meaning the qualitative and quantitative research questions, data collection, and data analysis were separate. The second decision refers to the priority given to the two methods. In this study the two methods had an equal priority so that both played an equally important role in addressing the research problem. Morse (1991) developed a notation system for mixed methods designs. This study can be described using the notation system: QUAL + QUAN. This notation shows that the qualitative and quantitative methods occur concurrently and are of equal importance in the study. The third decision involves the timing of the two strands, which for this study was concurrent timing with both qualitative and quantitative strands implemented in a single phase of the study. The fourth decision involves where and how to mix the strands. In this study mixing occurred during interpretation or the final step of the research process after both sets of data are collected and analyzed.

After the four key decisions were considered, the best mixed methods design for the study was a “convergent parallel design” (Creswell & Plano Clark, 2011). A convergent parallel design occurs when “the researcher uses concurrent timing to implement the qualitative and quantitative strands during the same phase of the research process, prioritizes the methods equally, and keeps the strands independent during analysis and then mixes the results during the

overall interpretation” (p. 71). This type of design is used for a more complete understanding of a topic and to obtain different but complementary data on the same topic. This design is used to triangulate the methods by directly comparing and contrasting quantitative statistical results with qualitative findings for corroboration and validation purposes. This design is a preferred choice for researchers new to mixed methods because it makes intuitive sense (Creswell & Plano Clark, 2011). A convergent design is efficient allowing multiple data collection during one phase at approximately the same time.

Sampling Strategy

Three middle schools from the southeastern United States were selected to participate in the study. I used non-probability purposeful sampling to select sites for the study that provided the optimal settings in which to examine distributed leadership. Merriam (1998) described purposeful sampling as “based on the assumption that the investigator wants to discover, understand, and gain insight and therefore must select a sample from which the most can be learned” (p. 61). Criteria were established to serve as the basis for school selection. In criterion-based selection the researcher “creates a list of the attributes essential to the study and proceeds to find or locate a unit matching the list” (Merriam, 1998, p. 61). A list of attributes of distributed leadership was established following a thorough review of relevant literature with the four main characteristics or attributes of distributed leadership chosen for a checklist of selection criteria. The characteristics included the most frequently cited descriptions of distributed leadership in multiple journal articles studied for the review of literature. The characteristics were “interaction of multiple leaders” (Angelle, 2010; Camburn et al., 2003; Harris 2003, 2005a; Hulpia & Devos, 2010; Mayrowetz, 2008; Smylie et al., 2007; Spillane et al., 2001, 2003),

“interdependency” (Harris, 2003; Smylie et al., 2007; Spillane, 2005; Spillane et al., 2001), “stretched over work of many” (Harris, 2005a; Mayrowetz, 2008; Smylie et al., 2007; Spillane et al., 2001), and “variety of expertise” (Angelle, 2010; Harris, 2005a; Smylie et al., 2007). The list of characteristics was used to create The School Characteristics Checklist (see Appendix A). The checklist, as well as a letter of explanation, was delivered to district administrators of seven school systems in the southeast region of the United States.

One district administrator from each school system ranked the middle schools in his or her district based on The School Characteristics Checklist (Appendix A) and returned the forms in an enclosed addressed, stamped envelope. Three district administrators returned rankings initially. A second packet was mailed resulting in two additional replies. Once the rankings were received, I generated a list of schools ranked in order with the ones displaying most of the distributed leadership attributes down to the ones displaying the least number of attributes.

Sites and Participants

Three schools were chosen for participation in the study based on recommendations and rankings from district administrators on characteristics of distributed leadership and willingness by the district administrator to participate in the study. The principals at the top-ranked schools were contacted about participation in the study with three middle schools ultimately chosen for participation. The participants for the study included the principals from each selected school. In addition to the principals, the teachers at each school were asked to participate in the study by completing two surveys. All three principals agreed to place surveys in teachers’ mailboxes with completed surveys to be returned to a folder in the main office. All three principals also sent email reminders to teachers to complete the surveys. Teachers were given from one to two

weeks to complete the surveys. Names have been changed of all participating schools, principals, and teachers to protect identity and ensure confidentiality of the sample.

Demographic data and general information for each school was obtained from the State Department of Education report cards and from school, district, and community websites. Tables 2 and 3 provide student and school demographic information for each of the three schools and statewide information for the purpose of providing background information and context for the schools selected for participation in the study.

Data Collection Procedures

Data were collected from multiple sources in this study including qualitative and quantitative data. Using various methods of data collection provided triangulation for the study. According to Yin (2003), “a major strength of case study data collection is the opportunity to use many different sources of evidence” (p. 97). Data sources for this study include:

- Written statement of leadership philosophy
- Semi-structured interview
- Field notes of observation
- Journal of leadership decisions
- Teacher surveys (Omnibus T-Scale; OCDQ-RM)

I collected sufficient data to provide rich, thick descriptions of the principals’ mental models. The teacher surveys showed the extent of the preconditions (leadership practice, relationships, and trust) from Angelle’s (2010) model of distributed leadership for middle schools. Comparing the data helped to confirm or corroborate the principals’ espoused beliefs with the everyday function of the schools. Comparing the results from the three schools using cross-case analysis strengthened the findings of the study. The same data collection procedures were used at each of the three schools. Table 4 relates each data source to the research questions.

Table 2

Student Demographic Information of Participating Schools

School Name	Student Enrollment	Economically Disadvantaged	Students with Disabilities
Cedar Hills	533	357 (67%)	91 (17.1%)
Ridgewood	710	482 (68%)	122 (17.2%)
Riverview	660	304 (46%)	71 (10.8%)
State		58.6%	13.7%

Table 3

School Demographic Information of Participating Schools

School Name	Per Pupil Expenditure	Attendance Rate	Promotion Rate	Discipline Rate (Suspensions)	Highly Qualified
Cedar Hills	\$8,607	97.0%	100%	56 (10.5%)	100%
Ridgewood	\$12,075	98.3%	100%	73 (10.3%)	100%
Riverview	\$12,075	99.4%	100%	20 (3.0%)	100%
State	\$9,293	95.4%	98.2%	74,802 (7.5%)	98.4%

Table 4

Design Matrix Relating Data Sources with Research Questions

Research Questions	Data Sources
Research Question #1: How do three middle school principals describe their mental models of distributed leadership?	Written statement of leadership philosophy Principal interviews Field notes from observation
Research Question #2: What are the teachers' perceptions of distributed leadership in the school (i.e. to what extent do the preconditions of leadership practice and relationships from Angelle's (2010) model of distributed leadership for middle schools exist at the three schools)?	Teacher survey (OCDQ-RM)
Research Question #3: How are the mental models of the principals and the perceptions of distributed leadership of the teachers evidenced in the school (i.e. to what extent does the precondition of trust from Angelle's (2010) model of distributed leadership for middle schools exist at the three schools)?	Teacher survey (Omnibus T-Scale) Journal of leadership decisions Principal interviews

Qualitative Data Collection

The qualitative data collected for this study included exploration of the three principals' mental models. Data came from several sources of evidence including a written statement of leadership philosophy, semi-structured interview, and field notes of observation.

Written Statement of Leadership Philosophy. Principals were asked to write a statement describing their leadership philosophy (see Appendix B). Leadership philosophy was described as the way in which principals view themselves as leaders. A leadership philosophy guides one's actions, behaviors, and thoughts. Principals were asked to explore and reflect on their personal values, assumptions, and beliefs about leadership. As described by Askill-Williams et al. (2007), one way of investigating mental models is to ask participants to reflect

upon the issue at hand in order to make their thinking available for researcher interrogation. The written statements provided one source of data to help reveal the principals' mental models of distributed leadership.

Semi-structured Interview. Each principal participated in a forty-five minute semi-structured interview based on an interview protocol (see Appendix C). The interviews were audio recorded with a digital recorder and transcribed. Interview questions were carefully selected to address each research question and to elicit as much information as possible from each principal regarding the research topic. Several types of questions were selected to elicit different types of information from participants which include: experience/behavior, opinion/value, knowledge, background/demographic questions, hypothetical, devil's advocate, interpretive and ideal position (Merriam, 1998; Patton, 1990). Each type of question selected for the interview protocol is shown in Table 5. Each question was also selected to address research questions one and three as shown in Table 6.

Table 5
Interview Question Analysis

Type of Interview Question	Principal Interview Protocol Questions
Background/Demographic	#1
Devil's Advocate	#12
Experience/Behavior	#1, #2, #4, #5, #10
Hypothetical	#11
Interpretive	#7
Ideal Position	#11
Knowledge	#6, #8
Opinion/Value	#2, #3, #6, #7, #9

Table 6
Research Questions in Relation to Interview Questions

Research Questions	Questions from Interview Protocol
Research Question #1: How do three middle school principals describe their mental models of distributed leadership?	#1, #2, #3, #5, #7, #8, #9, #11, #12
Research Question #3: How are the mental models of the principals and the perceptions of distributed leadership of the teachers evidenced in the school (i.e. to what extent does the precondition of trust from Angelle's (2010) model of distributed leadership for middle schools exist at the three schools)?	#4, #6, #8, #9, #10, #12

Journal of Leadership Decisions. At the conclusion of the interview, each principal was given a journal with instructions to document five leadership decisions (see Appendix D). The journal included a brief description of what the decision was about. Each decision was rated for the level of difficulty on a scale of one to three (1=not at all difficult, 2=moderately difficult, 3=extremely difficult). Next the journal included a chart in which each principal indicated who was involved in making the decision with the principal, such as teachers, leadership team members, community members or parents, district personnel, or others. Then each principal indicated to what extent each person was involved in making the decision based on a scale of one to three (1=somewhat involved, 2=moderately involved, 3=this person's involvement was critical). The journal served as a visual tool to reflect how distributed leadership actually works within the principal's daily interactions.

Observation. I observed each principal during a field visit in the school setting taking field notes and documenting occurrences of distributed leadership characteristics. The

characteristics were from The Selection Criteria Checklist of Distributed Leadership Characteristics (see Appendices A and E).

Quantitative Data Collection

The quantitative data collected for the study included two surveys that were completed by teachers in the three middle schools. The first survey, the Omnibus T-Scale Faculty Trust Inventory (Hoy & Tschannen-Moran, 2003) (see Appendix F), measured the level of trust in the school, one of the three preconditions of Angelle's (2010) model. The second survey, the Organizational Climate Description for Middle Schools (OCDQ-RM) (Hoy, Hoffman, Sabo & Bliss, 1996) (see Appendix G), measured leadership practice and relationships/collegiality among teachers to investigate the remaining two preconditions from Angelle's model (2010). Wayne K. Hoy at The Ohio State University developed both instruments used in the study. Both instruments are available for download at waynekhoy.com. Approximately 51% of teachers completed surveys among the three schools (N=65). See Table 7 for completion percentages for surveys from each school.

Table 7
Completion Rates for Survey Instruments

School	Total Teachers	Completed Surveys	Percentage
School 1 - Riverview	48	22	46
School 2 - Cedar Hills	32	22	69
School 3 - Ridgewood	48	21	44
Totals:	128	65	51

The Omnibus T-Scale. The first quantitative instrument, the Omnibus T-Scale (Hoy & Tschannen-Moran, 2003), contained twenty-six Likert items and measures three subscales: faculty trust in the principal, faculty trust in colleagues, and faculty trust in clients. Hoy defined

trust as “an individual or group’s willingness to be vulnerable to another party based on the confidence that the latter party is benevolent, reliable, competent, honest, and open” (Hoy & Tschannen-Moran, 1999, p. 189). The Omnibus T-Scale is a short measure of these three dimensions of trust. The reliabilities of the three subscales range from .90 to .98. Factor analytic studies of the Omnibus T-Scale support the construct and discriminant validity of the concept (Hoy & Tschannen-Moran, 2003, www.waynehoy.com/org_trust.html). The survey took approximately ten minutes to complete. Responses to items range from strongly disagree (1) to strongly agree (6). Average scores were computed for each item. Next school scores were computed for each subtest. The Omnibus T-Scale instrument was selected to measure the level of trust in each school to address research question #3 as shown in Table 8.

Table 8
Research Question Related to Omnibus T-Scale Survey Questions

Research Question	Omnibus T-Scale Questions
Research Question #3: How are the mental models of the principals and the perceptions of distributed leadership of the teachers evidenced in the school (i.e. to what extent does the precondition of trust from Angelle’s (2010) model of distributed leadership for middle schools exist at the three schools)?	Faculty Trust in the Principal: Items 1, 4, 7, 9, 11, 15, 18, 23 Faculty Trust in Colleagues: Items 2, 5, 8, 12, 13, 16, 19, 21 Faculty Trust in Clients: Items 3, 6, 10, 14, 17, 20, 22, 24, 25, 26

The Organizational Climate Description for Middle Schools. The second quantitative instrument, the Organizational Climate Description for Middle Schools (OCDQ-RM) (Hoy et al., 1996), was comprised of fifty questions measuring six dimensions: supportive principal behavior, directive principal behavior, restrictive principal behavior, collegial teacher behavior, committed teacher behavior, and disengaged teacher behavior. Table 9 provides further explanation of each of the six dimensions measured by the OCDQ-RM.

Table 9
Six Dimensions of the OCDQ-RM

Dimension	Description	Example behaviors
Supportive principal behavior	• Behavior directed toward both the social needs and task achievement of faculty	• Helpful • Genuine concern • Motivates by using constructive criticism • Sets example through hard work
Directive principal behavior	• Rigid, domineering behavior	• Close and constant monitoring over virtually all aspects of teacher behavior
Restrictive principal behavior	• Behavior that hinders rather than facilitates teacher work	• Burdens teachers with paperwork, committee requirements, demands that interfere with teaching responsibilities
Collegial teacher behavior	• Open and professional interactions among teachers	• Teachers help one another both professionally and personally • Teachers like and respect one another
Committed teacher behavior	• Teacher behavior is directed toward helping students develop both socially and intellectually	• Teachers work extra hard to insure student success in school
Disengaged teacher behavior	• Behavior that signifies a lack of meaning and focus to professional activities	• Teachers simply putting in their time • Critical and unaccepting of colleagues

The reliability scores of the scales were relatively high: Supportive (.96), Directive (.88), Restrictive (.89), Collegial (.90), Committed (.93), and Disengaged (.87). A factor analysis of the instrument supports the construct validity of the concept of organizational climate and the predictive validity has been supported (Hoy & Sabo, 1998; Hoy & Tarter, 1997). The survey took approximately ten minutes to complete. Responses to items ranged from rating behavior

that rarely occurs (1) to very frequently occurs (4). Each item was scored, with some items reversed scored, and then an average school score was computed for each item. The school is the unit of analysis. The average school item scores were then computed for each of the six subscales representing the climate profile of the school. The OCDQ-RM instrument was selected to measure teachers' perceptions of leadership practice and relationships in each school to address research question #2 as shown in Table 10.

Table 10

Research Question Related to OCDQ-RM Survey Questions

Research Questions	OCDQ-RM Questions
Research Question #2: What are the teachers' perceptions of distributed leadership in the school (i.e. to what extent do the preconditions of leadership practice and relationships from Angelle's (2010) model of distributed leadership for middle schools exist at the three schools)?	Supportive Behavior: Items 1, 10, 11, 12, 15, 19, 24, 32, 36, 44, 49 Committed Behavior: Items 5, 6, 7, 17, 18, 21, 46, 47, 48 Directive Behavior: Items 9, 20, 33, 37, 38, 41 Collegial Behavior: Items 2, 13, 14, 16, 22, 25, 34, 35, 40, 43, 45 Disengaged Behavior: Items 8, 23, 26, 27, 28, 29, 30, 31, 50 Restrictive Behavior: Items 3, 4, 39, 42

Data Analysis

As explained by Anfara, Brown, and Mangione (2002) "the purpose of analysis is to bring meaning, structure, and order to data" (p. 31). Yin (2003) suggested having a general analytic strategy, defining priorities for what to analyze and why, which will help the researcher treat evidence fairly, produce compelling analytic conclusions, and rule out alternative interpretations. Merriam (1998) suggested data collection and analysis should be a simultaneous activity. Because the study was a mixed methods design, data analysis included qualitative methods, quantitative methods, and mixed methods analyses. As recommended by Creswell and Plano Clark (2011), several steps were taken to analyze the data including preparing the data for

analysis, exploring the data, analyzing the data, representing the analysis, interpreting the analysis, and validating the data and interpretations. Mixed methods data analysis consists of analytic techniques applied to both the quantitative and the qualitative data as well as to the mixing of the two forms of data concurrently and sequentially in a single study (Creswell & Plano Clark, 2011). All results from data analysis are represented in summary form in statements, discussion, tables, and figures as recommended by Creswell and Plano Clark (2011).

Qualitative Data Analysis

Qualitative data analysis began with reading through the data (written statements of leadership philosophy, interview transcripts, and field notes of observation) to develop a general understanding of the information while writing notes and initial thoughts in the margins. These notes were the first step in forming broader categories of information referred to as themes or codes. Coding, according to Merriam (1998), is “assigning some sort of shorthand designation to various aspects of the data so that you easily retrieve specific pieces of data” (p. 164).

Creswell and Plano Clark (2011) described coding as “the process of grouping evidence and labeling ideas so that they reflect increasingly broader perspectives” (p. 208). Anfara et al. (2002) suggested code mapping using three iterations of analysis. This process was used for the current study. Initial codes from qualitative data sources were categorized for research questions one and three. Initial codes were grouped into twelve patterns. The twelve patterns were further categorized into four themes as shown in Table 11.

Table 11
Code Map

CODE MAPPING FOR MENTAL MODELS OF DISTRIBUTED LEADERSHIP	
(To be read from bottom up)	
Research Question #1	Research Question #3
(THIRD ITERATION: THEMES APPLIED TO ALL CASES)	
1A Mental Models	3A Relationships
1B Leadership Practice	3B Trust
(SECOND ITERATION: PATTERNS)	
1A Mental Models	3A Collaboration
1A Leadership Philosophy	3A Communication
	3A Supportive Relationships
1B Accountability	3B Climate
1B Expectations	3B Learning from others
1B Demands of the job	3B Listening to others
1B Leadership tasks/duties	3B Trusting others
(FIRST ITERATION: INITIAL CODES)	
1A Beliefs	3A Meet in small groups
1A Engage others in philosophy	3A Seek input
1A Captain and crew	3A Empower others
1A Serve others	3A Collaboration
1A Listen and take action	3A Majority rule
1A Focus on kids	3A Delegate
1A Majority rule	3A Face to face communication
1A Visibility	3A Stay involved/current
1A Others shape you	3A Listen to concerns
1A Encourage people	3A Be spokesperson for staff
1A Shared leadership	3A Share praises and frustrations
1A Facilitator	3A Relay feedback
	3A Build relationships
	3A Be pleasant and sincere
	3A Build people

Table 11 Continued

(FIRST ITERATION: INITIAL CODES CONTINUED)

	3A Collaborative friendships
	3A Build relationships
1B Increase in accountability	3B Maintain good environment
1B Observe classes/teachers/students	3B Visibility
1B High expectations	3B Positive attitude
1B Data, evaluations, assessments	3B Appreciation, praise
1B Visibility	3B Wear a tie
1B Weekly team meetings	3B Learn to co-lead
1B Good communication	3B Collaborative relationships
1B Fast-paced	3B Get new ideas/share ideas
1B Academic leader	3B Learn by being around good people
1B Be the best you can every day	3B Others shape you
1B Overload mode	3B Listen and take action
1B Multi-task	3B Seek input
1B Time management	3B Share frustrations
1B Wears you down/takes a toll	3B Transparency
1B Challenging, exciting	3B Facilitate
1B Wear different hats	3B Be there for them
1B 24-hour service	3B Be a good listener
1B Cannot do job on your own	3B We're in this together
1B Keep track, organized	3B Let people do their jobs
1B Bus duty, lunch duty	3B Trust they are doing their jobs
1B Phone calls, emails, meetings	3B Know my staff
1B Coach	3B Hire quality people, listen to them
1B Get resources	3B Support staff the best you can
1B Advocate for staff	
1B Frequent communication	
1B Flexibility	
1B Input	
1B Give praise	

Quantitative Data Analysis

The first steps for analyzing the quantitative data from the two survey instruments included converting the raw data to meaningful scores using Statistical Program for Social Sciences (SPSS). I conducted descriptive analysis including mean and standard deviation to determine the general trends in the data. I explored the data for each school and also examined trends across all three schools. The results of the data analysis were summarized using tables and figures in Chapter Four.

Each principal completed journal entries documenting leadership decisions. The results of journal entries were summarized in a table in Chapter Four. Analysis of the journal entries was conducted using a rubric to assess the extent of the distribution of leadership decisions. The rubric was a scale of one to five, one indicated the decision was made by the administrator only, two indicated the decision was made including members of the leadership team, three indicated the decision was made including members of the leadership team and district personnel, four indicated multiple teams were represented, and five indicated all stakeholders were involved in the decision including administrators, leadership team members, district personnel, teachers, parents, students, and community members. The rubric served as a visual representation of the extent of the distribution of leadership decisions within the school.

Methods of Verification

According to Tashakkori and Teddlie (2010) concerns about validity have become more a part of the discussion of mixed methods research. Creswell and Plano Clark (2011) defined validity in mixed methods research as “employing strategies that address potential issues in data collection, data analysis, and the interpretations that might compromise the merging or

connecting of the qualitative and quantitative strands of the study and the conclusions drawn from the combination” (p. 239). As mentioned earlier in the chapter various methods of verification were used to increase the validity of the study including using multiple sources of evidence. A major strength of case study research is the opportunity to use many different sources of data (Yin, 2003). Data triangulation of this study included written statements of leadership philosophy, principal interviews, and field notes of observations. In addition, quantitative data were collected by administering two surveys to teachers at each principal’s school to further check the information provided by the principal about the extent of distributed leadership among staff in the school as well as journal entries of leadership decisions to visually represent the extent of distribution of leadership decisions within the school. According to Yin (2003) by using data triangulation “construct validity is addressed because the multiple sources of evidence essentially provide multiple measures of the same phenomenon” (p. 99).

As explained by Anfara et al. (2002), to increase validity and trustworthiness of a study, it is necessary to fully disclose all procedures and decisions in the research process; doing so will increase the reliability and replicability of the study. One way to increase the validity in a study is by including detailed explanations of how data sources are related to the research questions, how themes are developed, and how triangulation is accomplished (Anfara et al., 2002). Triangulation was accomplished in this study by obtaining data from several sources and from several individuals building evidence for codes and themes (Creswell & Plano Clark, 2011).

Role of the Researcher

My role in the study was a non-participant observer and interviewer. Yin (2003) and Merriam (1998) outlined the characteristics required to conduct a quality case study. Yin (2003)

points out that the researcher needs to ask good questions and be able to interpret the answers. The researcher should be a good listener and be adaptive and flexible. The researcher should be unbiased by preconceived notions. Similarly Merriam (1998) suggested the researcher should be highly intuitive and sensitive and should be a good communicator. I strived to be a good listener and to communicate clearly and effectively in both written and verbal communications with participants.

The bias I have for this study relates to my fifteen years' experience as a school counselor and leadership team member. I admit having some preconceived notions about how administrators should involve others in leadership decisions. Reviewing relevant literature for this study has required me to reflect on my own ideas and opinions. My bias should not impact my ability to collect or analyze the data because I am using triangulation, which increases the validity by collecting data from multiple sources and individuals. In addition, my years as a counselor have provided me with much practice on being a good listener, being adaptive, and flexible, characteristics mentioned above as necessary for conducting a quality case study.

Potential Ethical Issues

According to Merriam (1998) researchers in case studies are the "primary instrument of data collection and analysis" (p. 42). This is an advantage, but can also be considered a potential limitation related to the sensitivity and integrity of the researcher. I was careful to make every effort to maintain trust and confidentiality with the staff of these schools. Reviewing ethical guidelines, such as those outlined by the Institutional Review Board, helped me maintain ethical behavior throughout the study.

Before conducting any research involving human participants, The University of Tennessee requires researchers to gain approval from the Institutional Review Board (IRB). This process was followed for this study including compliance with all requirements such as obtaining informed consent and maintaining confidentiality. To ensure confidentiality for participants, all names of participating schools and principals were changed in order to protect their identities. In addition, steps were taken to ensure complete confidentiality for teachers by collecting signed consent forms and completed survey instruments in separate envelopes so that no names were attached to the surveys. Surveys were identified only by number. This process helped ensure an ethical and safe research process for the human participants in this study.

Chapter Summary

A mixed methods case study design was the best fit for the nature of this study and the questions that were explored. The rich, thick, descriptive data gave a clearer picture of the mental models of distributed leadership held by participating principals and how these mental models have contributed to their daily leadership practice. In addition the quantitative data provided further evidence of the leadership that is practiced on a daily basis in each of the schools, the level of trust in the school environment, and the relationships that are formed within the school organization. The purpose of this chapter was to make the process and decisions made for this study as clear as possible to increase the validity and trustworthiness of the study. Chapter Four will present the findings and analysis from the study and Chapter Five will include discussion, implications and recommendations for future research.

CHAPTER 4

FINDINGS AND ANALYSIS

The purpose of this study was to describe three middle school principals' mental models of distributed leadership and to examine to what extent the three preconditions (leadership practice, relationships, and trust) from Angelle's (2010) model of distributed leadership for middle schools exist in the three principals' schools. The following research questions addressed the purpose of the study:

1. How do three middle school principals describe their mental models of distributed leadership?
2. What are the teachers' perceptions of distributed leadership in the school (i.e. to what extent do the preconditions of leadership practice and relationships from Angelle's (2010) model of distributed leadership for middle schools exist at the three schools)?
3. How are the mental models of principals and the perceptions of distributed leadership of the teachers evidenced in the school (i.e. to what extent does the precondition of trust from Angelle's (2010) model of distributed leadership for middle schools exist at the three schools)?

A mixed method, convergent parallel design, multisite case study was selected as the best fit to address the purpose of the study. This chapter includes findings from the data analysis from within and across the three sample schools. Demographic data was included for contextual purposes for each principal and school. Qualitative, then quantitative data and findings are presented for each school followed by a cross case analysis. Research question one was addressed through the analysis of data collected from each principal including the interviews,

written statements of leadership philosophy, and field notes of observations from the site visit.

Research question two was addressed through the Organizational Climate Description for Middle Schools (Hoy et al., 1996), a teacher survey measuring perceptions of leadership practice and relationships. Research question three was addressed through the Omnibus T-Scale (Hoy & Tschannen-Moran, 2003), a teacher survey measuring perceptions of trust as well as the journal of leadership decisions, and principal interviews.

School 1: Riverview Middle School

Context and Demographics

Riverview Middle School, located in the eastern part of Greenview City, had an enrollment of 660 students in grades five through eight and was classified as a Safe School. The Riverview faculty included the principal, one assistant principal, two school counselors, a curriculum/technology facilitator, forty-eight teachers and eleven teaching assistants. The mission of Riverview Middle School was to provide a challenging learning environment.

Achievement scores from the 2013 state assessment for Riverview and the state (grades 3-8) are provided in Table 12. Achievement data showed that Riverview was a high-performing school exceeding state averages of proficient and advanced in all four areas tested. Students scoring below basic and basic were much lower than the state average in math, reading/language arts, science and social studies.

Table 12
Riverview and State Achievement Data

Subject	% Advanced	% Proficient	% Basic	% Below Basic
Math:				
Riverview	31.0	28.0	26.0	15.0
State	22.9	28.4	32.6	16.1
Language Arts:				
Riverview	16.0	50.1	27.2	6.7
State	11.3	38.2	38.8	11.7
Science:				
Riverview	31.4	45.9	14.7	8.0
State	19.2	44.4	22.6	13.8
Social Studies:				
Riverview	55.6	36.2	8.2	
State	42.2	42.8	14.9	

Riverview Principal

The principal of Riverview Middle School was Mr. Paul Carter. Mr. Carter has a master's degree and has been an educator for 21 years, twelve of those years in administration, either as a principal or assistant principal. He has been at Riverview for eight years, serving for seven years as assistant principal prior to becoming principal. Mr. Carter described his leadership philosophy as shared leadership with a collaborative approach. He believed in principal as a facilitator and that one of his main jobs as principal was to support the staff and create and maintain a safe environment for both students and staff.

Qualitative Data

Qualitative data were obtained through examining multiple sources of data including a written statement of leadership philosophy, a principal interview that was recorded and transcribed, and field notes of observations from a site visit. Initial coding was conducted to analyze the content of all qualitative data sources revealing twelve patterns of categories: accountability, climate, collaboration, communication, demands, expectations, leadership

philosophy/mental models, leadership tasks/duties, learning (from others), listening (to others), relationships, and trust. From these twelve categories, data were further analyzed into four themes: mental models, leadership practice, relationships, and trust (see Table 11 Code Map in Chapter 3).

Mental Models. Askill-Williams et al. (2007) described one way of investigating mental models through asking participants to provide a written statement to make their thinking available to the researcher. Mr. Carter was asked to write a statement describing his personal leadership philosophy to better understand his mental models of leadership. He listed his beliefs which included: “shared leadership”, “collaborative approach”, “utilize PLC teams”, “must ask essential questions”, “student learning main focus”, “principal as a facilitator”, “must provide support for staff”, and “create and maintain safe environment for students and staff”.

The personal leadership philosophy written by Mr. Carter provided insight into his mental models. As distributed leadership is a conceptual framework for thinking about school leadership (Spillane, 2005), Mr. Carter’s written statement was compared with key characteristics of distributed leadership (see Chapter 2 and Appendix A). Several of his written beliefs were consistent with a distributed perspective. Mr. Carter expressed his belief in sharing leadership and collaborating with others, both of which involve interaction of multiple leaders. His belief in facilitating spoke to having trust in others to share responsibilities and contribute to the leadership of the school. Mr. Carter expressed his belief in utilizing professional learning community teams to address essential questions, focusing on student achievement and relying on each individual’s area of expertise. Mr. Carter’s written statement provided initial evidence of his beliefs in the importance of sharing leadership in a school environment.

Leadership Practice. As defined by Spillane (2006), a distributed perspective is first and foremost about leadership practice as a product of the joint interactions of school leaders, followers, and aspects of their situation such as tools and routines. To gain a better understanding of Mr. Carter's mental models and daily leadership practice, a semi-structured interview was conducted consisting of carefully selected questions (see Appendix C). Throughout the interview, Mr. Carter referred to his belief in shared leadership and the importance of collaborating and interacting with others to meet demands. He described his mental models of leadership and how these influence his daily practice by saying:

My approach in a nutshell is I am here to serve. I am here to facilitate. I am here to help kids get the education and things they need and it has served me well. I don't try to deviate from that. There are things that come up that are what I call situational leadership. But in the end I always revert back to what my experience has taught me is that you work with people and you share that leadership and you involve people in the decision making process.

Mr. Carter referred to his interactions with others throughout the interview. He stated "you learn by being around good people, engaging other staff members in philosophy, their thoughts and that's why I enjoy hearing about what's going on in other schools and other things." He explained interacting with others is "what shapes you, who you're around, the kids, the whole experience." Mr. Carter was open in sharing how his leadership practice had been shaped by others in his previous, varied administrative experiences and by the changes that have occurred in the last several years in education explaining, "It is more shared leadership now than it was before. I think there is more collaboration, which is more my philosophy. It's not that

your principal is here and you work underneath him. It goes back to what I call the captain and crew syndrome.”

The “captain and crew syndrome” was a major belief for Mr. Carter that he referred to multiple times in the interview. He explained that he saw himself as “the captain” at Riverview but what is most important is “the crew.” He saw his role as principal as “a facilitator” who served others stating “I’m there to serve my kids and to serve my teachers, to help them and provide them with the resources they need to be successful.” He explained, “I don’t view it as I’m their boss; I view it as sharing leadership.”

In the interview, Mr. Carter shared examples of ways he involved others in decisions. He stated he believed strongly in building people up, focusing on their strengths, and sharing the good things they are doing with others. He described this as “sharing the wealth internally.” He gave an example of how this was accomplished in daily practice by describing a math teacher at Riverview who demonstrated exceptional ability with questioning. He had several teachers observe her and then they shared this experience and what they learned with other teachers in the school. This was an example of joint interaction and how daily routines, such as teachers sharing their experiences at a faculty meeting, put teachers in leadership roles, and increased their efficacy. Mr. Carter stated “that goes with my philosophy on shared leadership. We are helping each other when we put a teacher in a leadership role.”

Mr. Carter stated he believed in “being involved in lots of aspects, but also not becoming a micromanager.” Field notes from the site visit observation revealed Mr. Carter’s attention to detail, willingness to listen, and sincere interest in providing support to staff members. I was able to see his extensive organizational tools, including a detailed schedule and complex

organizational chart on a whiteboard in his office for making scheduling decisions as well as his extensive organizational artifacts in binders that included notes and agendas for faculty meetings and team meetings. Mr. Carter shared the notebooks with me during the visit that contained detailed agendas and notes from faculty and professional learning community meetings, providing evidence of joint interactions as part of the normal routine at Riverview. These observations revealed a picture of a principal very much involved in all the day-to-day activities within the school.

Another example of joint interaction was a collaborative discussion observed during the site visit between Mr. Carter and a grade level team leader regarding a field trip and whether or not to allow students to go on the trip. The team leader felt that a few students who were struggling with meeting class expectations should not be allowed to go on the field trip. Other team members felt the students should be allowed to go. Mr. Carter had participated in the discussion with the grade level team and then after the meeting listened to the team leader's concerns. Rather than make an executive decision, Mr. Carter stated he wanted both sides to have more time to talk and reach a consensus together. Mr. Carter later referred to this meeting during the interview where he described his role as being available to listen to all of the concerns and involving others in the decision making process, rather than simply making decisions on his own. This stated belief matched the interaction that was observed during the site visit. He viewed these types of incidents as "collaborative situations". In discussing this particular meeting, Mr. Carter reflected on other administrators he had worked for in the past that took a much different approach. In further explaining his own beliefs, Mr. Carter said:

Everyone has their approach, doesn't mean they're right or wrong or I'm right or wrong, but that's how you learn. You learn from others. What works best for them may not work for you. You have to have your style and what works for you. What I have found and what I think is the most effective, you're going to read in books and study what they call shared leadership. I call it captain and crew. You call it whatever you want. But I believe you work with your crew, you support your crew, and you let them do their job. That's what I believe.

Mr. Carter acknowledged the difficulty of meeting all the demands placed on today's schools. When asked what he would say to principals who try to handle everything themselves Mr. Carter stated:

What everybody's got to find as an administrator is just call it the way it is. You have to find your philosophy and what it is you feel. You have to find out what you fundamentally believe in and that's it. This is what I believe. I just think you can be successful and run your school more efficiently if you share leadership and work collaboratively. You get the right people on board and you roll with them. If your approach is that I'm in the one in control, and you are not utilizing shared leadership or collaboration, you will not be as successful in today's culture. I just don't believe it. And for me, you have to be. You have to adjust to your staff and your kids. You have to look at the strengths in people and what they're good at. That's what I look at.

Relationships. Throughout the interview Mr. Carter described having positive relationships with his staff. He verbalized his belief in the importance of listening to others and involving others in decisions to build positive relationships. This belief was observed in his

interactions with other staff members during the site visit, as described in the previous section.

Mr. Carter stated he valued getting feedback from others, another action that he believed contributed to building positive relationships in the school. Mr. Carter provided one example of this in the interview when he described a recent initiative by the school district called “bring your own device” days. This allowed students to bring technology devices from home to use during classes to promote the use of technology as a tool in the classroom. The district proposed “BYOD” every day in May. Mr. Carter sent out an online survey to all staff members seeking their input. He then shared this feedback with the central office staff. There was some disagreement between the district’s proposal of every day and the number of days Mr. Carter’s staff was supporting. Further discussions took place and a compromise was reached, decreasing from every day to every Friday. Mr. Carter then supported the staff in embracing the change with a positive attitude and making the Friday BYOD days work to the best of their abilities. Through his leadership practice, Mr. Carter demonstrated his mental models by valuing others’ opinions, seeking feedback from others and supporting his faculty through a demanding change.

Mr. Carter believed in “sharing everything, good or bad and having transparency. I want their input instead of Paul Carter making the decision, I share everything with the staff, period, good or bad, I want to hear it.” Mr. Carter demonstrated in this example the respect he had for his staff members’ opinions on important every day matters and his willingness to share their opinions with those at the district level.

Trust. In his interview, Mr. Carter described the pride he had in the success of his school and the positive climate that was maintained. Through his past experiences, he learned from others how important trust was in creating a positive school environment. He said you “learn by

being around good people. You let people do their jobs and trust they are doing their jobs.” He explained, “I have a high intellect staff. I trust them to do what’s best for kids.” He trusted that teachers were focusing on student learning and this was evidenced in the school’s achievement data. He understood that even though he was busy and had many demands, it was extremely important to be there for his staff, to be a good listener, and to be sincere.

Quantitative Data

Mr. Carter’s written and stated beliefs provided a description of his mental models of distributed leadership. Additional evidence was collected to determine if Mr. Carter’s stated beliefs matched his actual leadership practice and to investigate the teachers’ perceptions of the preconditions of distributed leadership in the school. Data were collected on leadership practice, including leadership decision-making and leadership behavior, relationships and the level of trust in the principal at Riverview.

Leadership Decision-Making. Mr. Carter was asked to document several recent leadership decisions using a journal template (see Appendix D) to determine how widely leadership decisions were distributed in day-to-day practice. Items included in the journal entry were a brief description of the decision, a scale of 1 to 3 ranking the level of difficulty of the decision, a chart listing others involved in making the decision and a scale of 1 to 3 ranking the extent of others’ involvement. Mr. Carter completed four journal entries describing recent leadership decisions. A summary of the decisions documented by Mr. Carter is provided in Table 13.

Table 13
Summary of Journal Entries (Paul Carter)

Leadership Decision	Decision Level of Difficulty	Others Involved in Making Decision	Level of Involvement
Developing master schedule	Extremely difficult	5 leadership team members; 3 district personnel	Involvement was critical; Somewhat involved
RTI2 model	Moderately difficult	5 leadership team members; 4 district personnel	Involvement was critical; moderately involved
Adopt inclusion model (rather than resource model)	Extremely difficult	4 teachers; 1 district personnel	Involvement was critical; moderately involved
PLC Teams	Moderately difficult	4 leadership team members; 1 district personnel	Involvement was critical; somewhat involved

After the journal entries were received from Mr. Carter, the data were analyzed using a rubric developed by the researcher to visually represent the level of distribution of the leadership decisions (see Table 14). Various categories represented the variety of people that could potentially be involved in leadership decisions. Leadership team members at Riverview included the principal, the assistant principal, the two school counselors, the technology facilitator, and the data coach (a teacher). District personnel included central office staff. Multiple teams included representatives from each grade level and/or subject area. All stakeholders included all of the above plus parent, community member and student representation.

Mr. Carter's stated beliefs in shared leadership and involving others in decisions were only moderately supported by his journal entries. While he did not document any decisions being solely made by him, his documented decisions were made involving only a limited number of individuals, mainly members of his leadership team. There were no decisions documented

involving all stakeholders or even a majority of stakeholders. While Mr. Carter claims to value staff members' input and seeks feedback from staff members, the documented decisions did not reflect a wide distribution of leadership decisions among many in the school.

Table 14
Distribution of Leadership Decisions (Paul Carter)

Leadership Decision	1 Administrator only	2 Leadership team members	3 Leadership team; district personnel	4 Multiple teams/grade levels represented	5 All stakeholders represented
Developing master schedule			X		
RTI2 Model			X		
Inclusion Model				X	
PLC Teams			X		

Leadership Behavior. Teachers at Riverview were asked to complete a survey instrument to measure their perceptions of leadership practice and relationships in the school. Twenty-two of the forty-eight teachers completed the Organizational Climate Description for Middle Schools (OCDQ-RM) (Hoy et al., 1996) resulting in a response rate of 46%. The OCDQ-RM was comprised of scores on six dimensions that together represented the climate profile of a school. The six dimensions included three describing principal behavior (supportive, directive, and restrictive) and three describing teacher behavior (collegial, committed, and disengaged). The dimensions describing principal behavior addressed leadership practice by asking questions about the principal's behaviors such as being helpful, showing genuine concern, motivating by using constructive criticism, setting an example through hard work, monitoring

teacher behavior, and placing demands on teachers. The dimensions describing teacher behavior addressed relationships in the school by asking questions about how teachers interact with one another professionally and personally, how teachers treat one another, and how teachers work to insure student success in the school. See Table 9 in Chapter 3 for more information on each of the six dimensions.

Surveys were scored using strategies outlined by Hoy. Each item was scored by assigning 1 to rarely occurs, 2 to sometimes occurs, 3 to often occurs, and 4 to very frequently occurs. Items 21 and 50 were reverse scored (4 is rarely occurs, 3 is sometimes occurs, 2, often occurs, and 1 is very frequently occurs), per the author's recommendation. A mean school score (n=22) was calculated from a mean of means score by dimension items. Dimension scores represented the climate profile of the school. Per Hoy's recommendation, the school climate profile scores were compared with Hoy's database of middle schools drawn from a large, diverse sample of schools (see Table 15). Mean scores for Riverview were higher than the mean scores from Hoy's sample of schools in the dimensions of supportive principal behavior, collegial teacher behavior, and committed teacher behavior. Riverview's mean scores were lower than the mean scores from Hoy's sample in the dimensions of principal directive behavior, principal restrictive behavior and disengaged teacher behavior. These scores indicated Riverview was a school with a supportive principal who used effective leadership practices and committed teachers who worked well together, indicating positive relationships within the school.

Table 15
Descriptive Statistics of OCDQ-RM for Riverview

Dimension	Mean (Riverview)	SD (Riverview)	Mean (Hoy's Sample)	SD (Hoy's Sample)
Supportive Behavior	37.36	4.62	29.39	4.61
Directive Behavior	9.86	2.76	12.09	2.40
Restrictive Behavior	7.64	2.89	9.11	1.52
Collegial Behavior	32.23	5.00	29.30	3.01
Committed Behavior	30.41	3.11	26.76	2.74
Disengaged Behavior	10.64	1.73	15.56	2.18

Leadership Trust. Teachers were asked to complete a survey instrument to measure the level of trust at Riverview. Twenty-two of the forty-eight teachers completed the Omnibus T-Scale survey instrument (Hoy & Tschannen-Moran, 2003) resulting in a response rate of 46%. The Omnibus T-Scale measured three dimensions of faculty trust: trust in the principal, trust in colleagues, and trust in clients (students and parents). Surveys were scored using strategies outlined by Hoy. Each item was scored by assigning 1 to strongly disagree, 2 to disagree, 3 to somewhat disagree, 4 to somewhat agree, 5 to agree, and 6 to strongly agree. Items 4, 8, 11, 23 and 26 were reverse scored (1=6, 2=5, 3=4, 4=3, 5=2, and 6=1), per the recommendation of the survey author. First, a mean score was computed for each item. The whole school subscale scores were calculated from a mean of means score by dimension items. To address the purpose of this study, only the subscale of trust in principal was reported. The mean and standard deviation for the faculty trust subscale of trust in principal for Riverview Middle are shown in

Table 16 and represented a high level of trust in the principal by the teachers at Riverview who completed the survey.

Table 16
Descriptive Statistics of Omnibus T-Scale for Riverview (n=22)

Subscale	Mean	SD
Trust in Principal	5.64	.42

Summary

Riverview was a high-achieving school led by a supportive principal. Teachers were committed, had positive relationships and a high level of trust in the principal. Mr. Carter, the principal of Riverview, claimed to have strong beliefs in collaboration and sharing leadership with others. His mental models were evident in his descriptions of his daily leadership practice as supported through his written statement of leadership philosophy, answers to interview questions, field notes of observation from site visit, and the teachers' perceptions as shown in the two survey instruments. The leadership decision journal entries, however, revealed decisions made by Mr. Carter in collaboration with only a small number of individuals, rather than distributed among many in the school. Data analysis indicated the three preconditions from Angelle's (2010) model of distributed leadership for middle schools exist in varying levels at Riverview. The level of trust and positive relationships were strong, however, leadership practice was inconsistent with a distributed perspective, indicating Mr. Carter's actions did not consistently match his stated beliefs.

School 2: Cedar Hills Middle School

Context and Demographics

Cedar Hills Middle school, located in a rural county in the southeastern United States, had an enrollment of 533 students in grades six through eight and was classified as a Safe School. The Cedar Hills faculty included the principal, one assistant principal, and one school counselor, thirty-two teachers and four teaching assistants. The mission of Cedar Hills Middle School was inspiring and empowering all students to succeed in an ever-changing world.

Achievement scores from the 2013 state assessment are provided in Table 17. Cedar Hills' achievement scores were below the state average for percent of students scoring proficient and advanced in all areas with the exception of percent proficient in social studies where they scored higher than the state average. Students scoring below basic and basic exceeded the state average in all content areas.

Cedar Hills Principal

The principal of Cedar Hills was Ms. Kathy Wilson. Ms. Wilson has a master's degree and has been an educator for fourteen years, seven of those years in administration, either as a principal or assistant principal. She has been the principal at Cedar Hills for two years. Ms. Wilson described her leadership philosophy as changing roles as needed including being a visionary, a communicator, a facilitator, and a manager. She believed different situations required different leadership styles. She believed communication and collaboration were vital.

Table 17
Cedar Hills and State Achievement Data

Subject	% Advanced	% Proficient	% Basic	% Below Basic
Math:				
Cedar Hills	12.0	24.6	36.1	27.3
State	22.9	28.4	32.6	16.1
Language Arts:				
Cedar Hills	5.4	34.5	43.8	16.3
State	11.3	38.2	38.8	11.7
Science:				
Cedar Hills	14.0	43.1	26.8	16.1
State	19.2	44.4	22.6	13.8
Social Studies:				
Cedar Hills	25.4	53.1	21.5	
State	42.2	42.8	14.9	

Qualitative Data

Qualitative data were obtained through examining multiple sources of data including a written statement of leadership philosophy, a principal interview that was recorded and transcribed, and field notes of observations from a site visit. Initial coding was conducted to analyze the content of all qualitative data sources revealing twelve patterns of categories: accountability, climate, collaboration, communication, demands, expectations, leadership philosophy/mental models, leadership tasks/duties, learning (from others), listening (to others), relationships, and trust. From these twelve categories, data were further analyzed into four themes: mental models, leadership practice, relationships, and trust (see Table 11 Code Map in Chapter 3).

Mental Models. Ms. Wilson was asked to provide a written statement describing her personal leadership philosophy in order to make her thinking available to the researcher. In her written statement, Ms. Wilson described herself as “the type of leader who changes roles as needed, ranging from being a visionary, a communicator, a facilitator, and a manager. Different

situations require different leadership styles and/or qualities in order to be effective.” a visionary leader emphasizing different roles of communicator, facilitator, and manager. She wrote that “communication is key in a leadership role and collaboration is a vital part of the process as well.” Ms. Wilson’s written statement was compared with characteristics of a distributed leadership perspective (see Chapter 2 and Appendix A). Her belief in collaboration and communication was related to the characteristic of the interaction of multiple leaders. She also described relying on others’ expertise to most effectively lead a school, acknowledging that one person cannot meet all the demands alone which is similar to the distributed leadership characteristic of interdependency among leaders in a school. Ms. Wilson wrote that “stakeholders must take part in processes when at all possible, and that assists in them taking ownership”, a practice that promotes leadership that is stretched over the work of many individuals.

Leadership Practice. Ms. Wilson’s mental models and daily leadership practice were further explored through her interview responses. She described shared leadership as “what I have done the past two years. I have shared leadership with everyone in the building.” She highlighted the importance of learning from others and described the experience of working with a principal who had a leadership style different from her own. She stated that it was her belief that it is not possible to do everything yourself in today’s schools and sharing leadership with others was critical.

Ms. Wilson described the changes she has seen in education in the last several years and how those changes make distributing leadership necessary. She described a major shift in the

responsibilities of principals and believed it was not possible to “do it all yourself.” She explained:

In the past, that’s the type of leadership you saw, that authoritative figure. Everything came through them and they were the be all, end all, see all, know all. You could do that. Basically, your day consisted of issuing discipline, and locking and unlocking doors, that kind of thing. Honestly, you know, that is what he said you did (the former principal at Cedar Hills). Through the years, it’s evolved and I think no more so than in the last five to seven years. I think that is when the biggest shift has taken place and now in the last two years the changes have become so rapid that you just can’t do it all. You have to divide that leadership up among others.

Ms. Wilson shared an example of how leadership practice was shared by others in her building. She believed in the importance of communicating with stakeholders, including parents. She wanted to come up with a way to share information about common core standards with parents and community members. She acknowledged getting parents to come to the school for a meeting would be difficult. She presented the problem to her staff members who collectively came up with a solution of using media to reach a wider audience. They created an informative video explaining common core standards and posted it to the school website. Ms. Wilson received much positive feedback regarding the video and felt pride in the fact that many staff members contributed to addressing the problem. Ms. Wilson’s description of this incident was an example of her leadership practice matching her beliefs in sharing leadership with others to solve everyday problems.

Relationships. Positive relationships were a priority for Ms. Wilson. During the site visit to Cedar Hills, this was made apparent, as she was busy assisting a staff member who had just learned of the sudden passing of a relative. Ms. Wilson was caring in her interaction and made being available to help a grieving staff member a priority. Ms. Wilson described the importance of maintaining positive relationships with her staff members. She believed it was critical to show support and understanding of what staff members were going through both professionally as educators and in their personal lives. She explained, “I try to stay involved and current on what is going on with them professionally and personally and just letting them know I understand this is a scary, uncertain time in education, but we are all in this together.”

To build positive relationships with her staff, Ms. Wilson made meeting with teams a priority. She met with grade level professional learning community teams (PLCs) every two weeks at minimum. She also met with the faculty-wide PLC, department level PLCs, and the leadership team on a regular basis. The leadership team included the school counselor, the assistant principal and a representative from every department (each subject area and special education). This team was most directly involved in setting policies and procedures for the school. With regards to grade level PLCs, Ms. Wilson stated, “I sit in on as many of those as I can so that I am aware of what’s going on, what kind of planning is taking place, what obstacles they may have or what resources they may need. I try to be the go-between.” She frequently communicated staff members’ concerns or needs to district administrators and described herself as being “huge on communication.” She valued collaborative relationships and gave an example of her experience as a member of the National Institute of School Leaders where she has “made some lifelong collaborative friendships and relationships. We’ve been able to share a lot with

other systems, some that are not similar, some that are. You can get a lot of good information and ideas.”

Trust. Ms. Wilson viewed collaboration as a positive trend in her district and vital to a successful school. She believed in helping others take ownership and leading the school and trusted staff members to work toward solutions when faced with problems. She expressed the opinions and feelings of her staff to district personnel so that their voices were heard. She explained:

I feel that I am their spokesperson, first and foremost. If I go to a meeting at central office or with the other administrators in the county or even from other districts and questions are asked that pertain to teachers in classrooms or whatever, I try to share both their praises and their frustrations because I think that has to come from me. They are not present in those meetings and I am. So it is important to share with everyone. She described this as being their “voice.” This demonstrated a level of trust that she had worked to establish with and among her staff.

Quantitative Data

Ms. Wilson’s written and stated beliefs provided evidence of her mental models of distributed leadership. Additional evidence was collected to determine if Ms. Wilson’s stated beliefs were comparable to her actual leadership practice and to investigate the teachers’ perceptions of the preconditions of distributed leadership. Data were collected on leadership decision-making, leadership behavior, relationships, and the level of trust in the principal at Cedar Hills.

Leadership Decision-Making. Ms. Wilson provided five journal entries documenting various recent leadership decisions, the level of difficulty of the decisions and the other people involved in making the decisions (see Appendix D). A summary of the decisions documented by Ms. Wilson is provided in Table 18.

To analyze the data from the journal entries, a rubric was utilized to visually represent the level of distribution of the leadership decisions (see Table 19). Various categories represented the variety of people that could potentially be involved in leadership decisions. Leadership team members at Cedar Hills included the principal, the assistant principal, and the school counselor. District personnel included central office staff. Multiple teams included representatives from each subject area and/or grade level. All stakeholders included all of the above plus parent, community member and student representation.

Table 18
Summary of Journal Entries (Kathy Wilson)

Leadership Decision	Decision Level of Difficulty	Others Involved in Making Decision	Level of Involvement
Scheduling	Extremely difficult	4 teachers; 5 leadership team members; 1 district personnel	Involvement was critical; moderately involved; somewhat involved
Teacher assignments	Extremely difficult	All 32 teachers	Somewhat involved
Taking away the bell	Moderately difficult	All 32 teachers; 5 leadership team members	Involvement was critical; involvement was critical
Classroom placement	Moderately difficult	All 32 teachers	Involvement was critical
Seminar time	Moderately difficult	All 32 teachers; 5 leadership team members	Involvement was critical; involvement was critical

Table 19
Distribution of Leadership Decisions (Kathy Wilson)

Leadership Decision	1 Administrator only	2 Leadership team members	3 Leadership team; district personnel	4 Multiple teams/grade levels represented	5 All stakeholders represented
Scheduling				X	
Teacher assignments				X	
Taking away the bell				X	
Classroom placement				X	
Seminar time				X	

Ms. Wilson's stated beliefs consistent with a distributed perspective of leadership were supported by her journal entries. All five of the documented decisions involved others with four of the decisions involving all 32 teachers. No decisions were documented involving only the administrator or only the leadership team. There were also no decisions involving all stakeholders including parents, students, and community members. Ms. Wilson's beliefs of valuing others' input and sharing leadership among all her staff were reflected in a wide distribution of everyday, important leadership decisions. Ms. Wilson's journal of leadership decisions provided evidence of distributed leadership in the school and demonstrated her actions supporting her written and stated beliefs.

Leadership Behavior. Teachers at Cedar Hills were asked to complete a survey instrument to measure their perceptions of leadership practice and relationships in the school. Twenty-two of the thirty-two teachers at Cedar Hills Middle School completed the survey instrument, the Organizational Climate Description for Middle Schools (OCDQ-RM) (Hoy et al., 1996) resulting in a response rate of 69%. The OCDQ-RM was comprised of scores on six dimensions that together represented the climate profile of a school. The six dimensions included three describing principal behavior (supportive, directive, and restrictive) and three describing teacher behavior (collegial, committed, and disengaged). The dimensions describing principal behavior addressed leadership practice and the dimensions describing teacher behavior addressed relationships within the school. See Table 9 in Chapter 3 for more information on each of the six dimensions.

Surveys were scored using strategies outlined by Hoy. A mean school score (n=22) was calculated from a mean of means score by dimension items. Dimension scores represented the climate profile of the school. These scores were compared with Hoy's database of middle schools in Table 20. Cedar Hills had higher mean scores than Hoy's sample schools on supportive principal behavior, directive principal behavior, and collegial teacher behavior. Mean scores for Cedar Hills were lower than Hoy's sample on principal restrictive behavior, committed teacher behavior, and disengaged teacher behavior. These scores indicate Cedar Hills is a school with a supportive principal who uses effective leadership practices and teachers that work well together and have positive relationships.

Table 20
Descriptive Statistics of OCDQ-RM for Cedar Hills

Dimension	Mean (Cedar Hills)	SD (Cedar Hills)	Mean (Hoy's Sample)	SD (Hoy's Sample)
Supportive Behavior	38.50	4.91	29.39	4.61
Directive Behavior	13.32	3.00	12.09	2.40
Restrictive Behavior	8.45	2.84	9.11	1.52
Collegial Behavior	30.82	5.38	29.30	3.01
Committed Behavior	26.14	4.46	26.76	2.74
Disengaged Behavior	13.55	3.02	15.56	2.18

Leadership Trust. Teachers were asked to complete a survey instrument to measure trust at Cedar Hills. Twenty-two of the thirty-two teachers completed the survey instrument, the Omnibus T-Scale (Hoy & Tschannen-Moran, 2003), resulting in a response rate of 69%. The Omnibus T-Scale measured three dimensions of faculty trust: trust in the principal, trust in colleagues, and trust in clients (students and parents). Surveys were scored using strategies outlined by Hoy. To address the purpose of this study, only the subscale of trust in principal was reported. The mean and standard deviation for the faculty trust subscale of trust in principal for Cedar Hills Middle are shown in Table 21 and represent a high level of trust in the principal by the staff members at Cedar Hills who completed this survey.

Table 21
Descriptive Statistics of Omnibus T-Scale for Cedar Hills (n=22)

Subscale	Mean	SD
Trust in Principal	5.60	.45

Summary

Ms. Wilson described herself as situational leader who changed roles as needed stating “different situations require different leadership styles and/or qualities in order to be effective.” She prioritized sharing leadership, collaborating with others and involving others in leadership decisions. Ms. Wilson’s mental models were evident in her daily leadership practice and in the extent that she involved her staff in decisions. These beliefs were supported through Ms. Wilson’s written statement of leadership philosophy, answers to interview questions, field notes of observation from site visit, and the teachers’ perceptions as shown in the two survey instruments. The leadership decision journal entries revealed a wide distribution of leadership decisions among many at Cedar Hills. Data collection provided evidence of the existence of all three preconditions from Angelle’s (2010) model of distributed leadership for middle schools at Cedar Hills including a high level of trust and positive relationships and leadership practice that was consistent with a distributed perspective of leadership. Ms. Wilson’s mental models appeared to match her actions.

School 3: Ridgewood Middle School

Context and Demographics

Ridgewood Middle School, located in the western part of Greenview City, had an enrollment of 710 students in grades five through eight and was classified as a Safe School. The Ridgewood faculty included the principal, one assistant principal, two school counselors, one curriculum/technology facilitator, forty-eight teachers and eight teaching assistants. The mission of Ridgewood Middle School was to create a positive and rigorous academic environment that fosters critical thinking, effective decision-making, and responsible citizenship.

Achievement data from the 2013 state assessment are provided in Table 22. Achievement scores indicated that Ridgewood was a high performing school with students scoring proficient and advanced exceeding the state average in most content areas. The two exceptions were students who scored proficient on math and social studies, which fell slightly below the state average. The percent of students who scored below basic or basic was less than the state average in all content areas.

Table 22
Ridgewood and State Achievement Data

Subject	% Advanced	% Proficient	% Basic	% Below Basic
Math:				
Ridgewood	24.4	27.9	32.8	14.9
State	22.9	28.4	32.6	16.1
Language Arts:				
Ridgewood	12.5	44.0	35.1	8.4
State	11.3	38.2	38.8	11.7
Science:				
Ridgewood	27.9	45.9	18.8	7.4
State	19.2	44.4	22.6	13.8
Social Studies:				
Ridgewood	48.2	42.0	9.8	
State	42.2	42.8	14.9	

Ridgewood Principal

The principal of Ridgewood Middle School was Mr. Bill Lawson. Mr. Lawson has an education specialist's degree and has been an educator for 32 years. He has served as an administrator for 23 years. He has been a principal in the Greenview City school district for fifteen years and this is his first year as principal at Ridgewood. Mr. Lawson described his leadership philosophy as a situational leader who strives to maintain a good working environment, supporting teachers and students with high expectations in a caring atmosphere.

Qualitative Data

Qualitative data were obtained through examining multiple sources of data including a written statement of leadership philosophy, an interview that was recorded and transcribed, and field notes of observations from a site visit. Initial coding was conducted to analyze the content of all qualitative data sources revealing twelve patterns of categories: accountability, climate, collaboration, communication, demands, expectations, leadership philosophy/mental models, leadership tasks/duties, learning (from others), listening (to others), relationships, and trust. From these twelve categories, data were further analyzed into four themes: mental models, leadership practice, relationships, and trust (see Table 11 Code Map in Chapter 3).

Mental Models. Mr. Lawson was asked to provide a written statement describing his personal leadership philosophy in order to make his mental models available to the researcher. In his written statement, Mr. Lawson stated “I view myself as a situational leader. It is my goal to treat staff, students, and parents with kindness and respect. I feel it is my job to create and maintain a positive work environment. I try to consistently focus on the positives and address negative situations in a private manner.” He stated he tries to “lead by example” and views “relationships as huge. I want to casually speak with students and staff. I don’t want to be fully associated with the office. I try daily to be visible and speak with as many students as possible.” He believed frequent communication helped strengthen the relationships among the staff at Ridgewood Middle School.

The written statement provided by Mr. Lawson was compared with characteristics of a distributed perspective of leadership (see Chapter 2 and Appendix A). While he valued the expertise of others and realized the importance of interdependency in a school environment, his

main focus was on creating a positive school environment and developing positive relationships. He described his goal to “treat staff, students and parents with kindness and respect and handle even difficult situations in a positive manner.” While this positive, respectful approach could contribute to a climate where others are supported and encouraged to be involved in the leadership of the school, sharing leadership decisions was not specifically mentioned as a personal belief. Mr. Lawson stated he led by example and believed “true improvement and growth comes from within.” His written statement did not indicate a leadership philosophy consistent with a distributed leadership perspective.

Leadership Practice. Mr. Lawson’s mental models were further explored in his discussion of his daily leadership practices in the interview and in field notes of observation from the site visit. Mr. Lawson viewed himself as “a situational leader.” His main goal was to “treat staff, students, and parents with kindness and respect.” He believed his job was to create and maintain a positive work environment. As a principal, he admitted tough decisions must be made at times, but he believed in doing so in a positive manner. He felt it was important to address negative situations in a private manner, rather than address them in a faculty meeting or to the group as a whole. He enjoyed mentoring others, and helping teachers strengthen leadership skills by providing opportunities to “get their feet wet.”

Mr. Lawson described some examples of leadership practice not consistent with a distributed perspective of leadership. For example, he stated he believed in keeping a “reasonable amount of control in my hands” and he viewed himself as the academic leader in his school. He talked about changes he had encountered over the years as an administrator. He described the biggest change being the recent emphasis on accountability and data. He stated,

“The level of accountability has just increased, increased, increased.” He believed in the past, the principal would look at data to some extent, but it was not a priority or something that required much time. In reflecting on the past expectations of principals, Mr. Lawson said, “used to, you just kept children happy and safe, kept the teachers happy, and kept your community happy. That was just about your level of accountability. We took the state achievement test and those were our numbers. You looked at it but now, the level of accountability has just gotten crazy.”

Mr. Lawson’s stated beliefs could be related to the fact that Ridgewood has had multiple changes in leadership over the past several years. This had led to a decline in expectations and an increase in discipline problems among students that he and his staff were working to overcome. The daily leadership tasks Mr. Lawson was most involved in included interactions with others such as visiting classrooms, observing teachers and students, and attending meetings. He met with each grade level professional learning community every other week and led monthly faculty meetings. The leadership team and discipline committee met as needed. He stated that “when you meet with teams every other week it sort of weakens the need and the strength of a leadership team.” Mr. Lawson admitted he was working on delegating more and having less control over tasks that others could do. He had recently given up being in charge of athletics, attendance, and discipline, depending on other staff members to take care of these responsibilities.

Relationships. Mr. Lawson repeatedly emphasized the importance of forming positive relationships within the school stating relationships are “huge.” He believed in empowering others and explained this happens through having a pleasant climate and a good working

environment. He believed in building people and encouraging others. He valued getting input from others and he stated he usually went with the majority on decisions. Mr. Lawson worked hard to maintain a pleasant, happy community. He admitted:

Some of the things that are truly important that a principal has to do you don't get recognized or credit for that. I've always thought it's important to maintain a good working environment. Nobody really cares if you have that but they'll criticize you if you don't have that. You maintain that in the midst of all the change. You have to build those relationships, it's just constant. It's hard to maintain a good working environment with everything going on.

In an effort to establish positive relationships in his school, Mr. Lawson maintained visibility throughout the building. He explained, "Going in and out of people's classrooms is huge. You know it just makes them feel like you care enough to take the time to walk through and see their classroom. It's important for the children to see that I'm in and out of the classroom." He went on to say, "I think that is one thing that's really been lacking in this school. I think the administrators have walked in this office and closed the door literally and have not been willing to deal with irate parents or upset teachers or even mean students to a certain degree." He saw his efforts with being visible as a means to building more positive relationships.

Trust. Mr. Lawson's stated beliefs on leadership focused on building relationships with others and maintaining a positive climate and work environment. He liked consensus and talking with all the staff in smaller settings rather than large faculty meetings. He believed it was crucial to have high expectations and good time management in order to meet demands. Mr. Lawson

saw himself as a “situational leader” who dealt directly with difficult tasks when necessary but also tried to be positive and involved others as much as possible with decisions. He believed strongly in treating others with kindness and respect. He saw visibility in the school as a major key to success. He tried to encourage others and build others up, empowering them to take on leadership roles themselves. He believed his emphasis on positive relationships had contributed to recent improvement in the school climate and level of trust among staff members.

Quantitative Data

Mr. Lawson’s written and stated beliefs provided evidence of his mental models of leadership. Additional evidence was collected to determine how Mr. Lawson’s stated beliefs matched his actual leadership practice and to investigate the teachers’ perceptions of the preconditions of distributed leadership in the school. Data were collected on leadership practice, including leadership decision-making and leadership behavior, relationships and the level of trust in the principal at Ridgewood.

Leadership Decision-Making. Mr. Lawson provided five journal entries documenting various recent leadership decisions, the level of difficulty of the decisions and other people involved in making the decisions (see Appendix D). See Table 23 for a summary of the decisions documented by Mr. Lawson.

To analyze the data from the journal entries, a rubric was utilized to visually represent the level of distribution of the leadership decisions (see Table 24). Various categories represent the variety of people that could potentially be involved in leadership decisions. Leadership team members at Ridgewood included the principal, the assistant principal, the two school counselors, and the technology facilitator. District personnel included central office staff. Multiple teams

included representatives from each grade level and/or subject area. All stakeholders included all of the above plus parent, student, and community member representation.

Table 23
Summary of Journal Entries (Bill Lawson)

Leadership Decision	Decision Level of Difficulty	Others Involved in Making Decision	Level of Involvement
RTI2 Implementation	Extremely difficult	38 teachers; 5 district personnel	Involvement was critical; somewhat involved
BYOD district initiative	Moderately difficult	48 teachers; 5 district personnel	Involvement was critical; involvement was critical
ROSR (school-wide discipline program)	Moderately difficult	15 teachers; 15 discipline committee members	Involvement was critical; involvement was critical
Staff member termination	Extremely difficult	1 district personnel; police department	Involvement was critical
Building issue with student restrooms	Not at all difficult	Principal only	

Mr. Lawson's stated beliefs were not consistent with a distributed leadership perspective. However, his journal entries did show some level of sharing leadership decisions with others. One decision was made solely by Mr. Lawson and another involved only himself and district personnel. Three decisions involved nearly all the teachers in the school. The one decision made with only district personnel input reflected Mr. Lawson's written and stated beliefs that when faced with a negative situation involving one person, it is best to deal only with that person rather than the entire staff. The decision with the restrooms was a safety issue that had to be dealt with immediately; therefore, Mr. Lawson made that decision on his own. The three decisions that involved a majority of the staff were all decisions that impacted the entire school

and all staff members. The evidence from Mr. Lawson's journal of leadership decisions can best be described as mixed, providing some evidence of distribution when decisions were made that impacted the school as a whole and some decisions kept within the principal's control.

Table 24
Distribution of Leadership Decisions (Bill Lawson)

Leadership Decision	1 Administrator only	2 Leadership team members	3 Leadership team; district personnel	4 Multiple teams/grade levels represented	5 All stakeholders represented
RTI2 Implementation				X	
BYOD district initiative				X	
ROSR (school-wide discipline program)				X	
Staff member termination			X		
Building issue with student restrooms	X				

Leadership Behavior. Teachers at Ridgewood were asked to complete a survey instrument to measure their perceptions of leadership practice and relationships in the school. Twenty-one of the forty-eight teachers completed the survey instrument, the Organizational Climate Description for Middle Schools (OCDQ-RM) (Hoy et al., 1996) resulting in a response rate of 44%. The OCDQ-RM is comprised of scores on six dimensions that together represent the climate profile of a school. The six dimensions included three describing principal behavior (supportive, directive, and restrictive) and three describing teacher behavior (collegial,

committed, and disengaged). The dimensions describing principal behavior addressed leadership practice and the dimensions describing teacher behavior addressed relationships within the school. See Table 9 in Chapter 3 for more information on each of the six dimensions.

Surveys were scored using strategies outlined by Hoy. A mean school score (n=22) was calculated from a mean of means score by dimension items. Dimension scores represent the climate profile of the school. Table 25 provides the school climate profile scores for Ridgewood and means and standard deviations from Hoy's database sample of middle schools. Ridgewood mean scores were higher than Hoy's sample schools' mean scores on the dimensions of supportive principal behavior, directive principal behavior, collegial teacher behavior and committed teacher behavior. Ridgewood's mean scores were lower than the sample schools' mean scores on restrictive principal behavior, and disengaged teacher behavior. These scores indicated Ridgewood was a school with a supportive principal who used effective leadership practices and teachers who worked well together, had positive relationships, and were committed to their jobs.

Leadership Trust. Teachers were asked to complete a survey instrument to measure trust at Ridgewood. Twenty-one of the forty-eight teachers completed the survey instrument, the Omnibus T-Scale (Hoy & Tschannen-Moran, 2003), resulting in a response rate of 44%. The Omnibus T-Scale measures three dimensions of faculty trust: trust in the principal, trust in colleagues, and trust in clients (students and parents). Surveys were scored using strategies outlined by Hoy. To address the purpose of this study, only the subscale of trust in principal was reported. The resulting mean and standard deviation for the faculty trust subscale of trust in

principal for Ridgewood Middle are shown in Table 26 and represent a high level of trust in the principal by the staff members at Ridgewood who completed the survey.

Table 25
Descriptive Statistics of OCDQ-RM for Ridgewood

Dimension	Mean (Ridgewood)	SD (Ridgewood)	Mean (Hoy's Sample)	SD (Hoy's Sample)
Supportive Behavior	35.24	6.59	29.39	4.61
Directive Behavior	12.48	3.19	12.09	2.40
Restrictive Behavior	7.86	2.61	9.11	1.52
Collegial Behavior	33.62	5.18	29.30	3.01
Committed Behavior	29.62	4.34	26.76	2.74
Disengaged Behavior	14.76	3.03	15.56	2.18

Table 26
Descriptive Statistics of Omnibus T-Scale for Ridgewood (n=21)

Subscale	Mean	SD
Trust in Principal	5.35	1.03

Summary

Ridgewood was a high-achieving school that had endured several changes in the last few years including multiple changes in leadership, contributing to a recent decline in morale by staff members and an increase in student discipline issues according to the principal. Mr. Lawson had worked diligently to build positive relationships at Ridgewood since taking over as principal. He involved staff in important school decisions to some extent. He demonstrated his respect and care for others by being visible and observant of what was happening in the school on a daily basis. He worked to build the level of trust in the principal among staff members. His

efforts were evidenced in the results of the teacher survey data. The extent of the preconditions from Angelle's (2010) model of distributed leadership for middle schools at Ridgewood were mixed. While data indicated a high level of trust in the principal and positive relationships among staff in the school, the leadership practice was somewhat varied. While the principal used some effective leadership practices, they were not practices consistent with distributed leadership. Mr. Lawson's mental models were not strongly aligned to a distributed perspective, resulting in some decisions being made solely by the principal rather than leadership being stretched over the work of many on a consistent basis.

Cross-Case Findings and Analysis

As described by Merriam (1998), in cross-case analysis "the researcher attempts to build a general explanation that fits each of the individual cases, even though the cases will vary in their details" (p. 195). This section provides a general explanation and answer to each of the three research questions using overall findings from all three cases including qualitative data and quantitative data. The same basic framework used in each case study example was used in the cross-case analysis.

Context and Demographics

The three schools selected for the study had notable demographic differences (see Tables 2 and 3 in Chapter 3 for additional comparisons). Riverview and Ridgewood Middle Schools were both located in Greenview City, a small city in a southeastern state with a population of approximately 30,000. Cedar Hills Middle School was located in rural Mason County with a population of approximately 45,000. The Greenview City School district served 4,500 students and had a per-pupil expenditure of \$12,075; Mason County school district served 5,500 with a

much lower per-pupil expenditure at \$8,607. Mason County had more students considered economically disadvantaged (69.2%) than Greenview City (47%). Other notable differences included student ethnicity (see Table 27) and student achievement data (see Table 28).

Table 27
Comparison of Student Ethnicity

School	% White	% Black	% Hispanic	% Asian
Riverview	75.2	11.5	7.1	5.8
Cedar Hills	93.6	3.4	3	0
Ridgewood	65.5	20.8	7.9	4.1

Table 28
Comparison of Achievement Data

Subject	School	% Advanced	% Proficient	% Basic	% Below Basic
Math	Riverview	31.0	28.0	26.0	15.0
	Cedar Hills	12.0	24.6	36.1	27.3
	Ridgewood	24.4	27.9	32.8	14.9
Language Arts	Riverview	16.0	50.1	27.2	6.7
	Cedar Hills	5.4	34.5	43.8	16.3
	Ridgewood	12.5	44.0	35.1	8.4
Science	Riverview	31.4	45.9	14.7	8.0
	Cedar Hills	14.0	43.1	26.8	16.1
	Ridgewood	27.9	45.9	18.8	7.4
Social Studies	Riverview	55.6	36.2	8.2	
	Cedar Hills	25.4	53.1	21.5	
	Ridgewood	48.2	42.0	9.8	

The principals at all three schools were in their current positions for two years or less. Mr. Carter and Ms. Wilson both held Master's degrees, while Mr. Lawson held an Education Specialist degree. Mr. Lawson had the most years of experience as an educator (32 years) and as an administrator (23 years). Mr. Carter had 21 years of experience as an educator and 12 as an administrator. Ms. Wilson had 14 years in education and 7 years as an administrator.

Qualitative Data

Research question one addressed the main purpose of this study, which was to describe three principals' mental models of distributed leadership. To meet this purpose and answer the research question, each principal submitted a written statement of leadership philosophy that was analyzed for meaning. Each principal participated in a semi-structured interview that was recorded and transcribed. Field notes were taken of observations from site visits at each school. These multiple sources of data provided a description and understanding of the mental models of each principal.

As previously explained, qualitative data were analyzed by initial coding which revealed twelve patterns of categories across all three principals: accountability, climate, collaboration, communication, demands, expectations, leadership philosophy/mental models, leadership tasks/duties, learning (from others), listening (to others), relationships, and trust. From these twelve categories, data were further analyzed into four themes: mental models, leadership practice, relationships, and trust (see Table 11 Code Map in Chapter 3).

Mental Models. All three principals provided written statements describing his or her leadership philosophy. The principals' written statements were compared to characteristics of a distributed perspective of leadership (see Chapter 2 and Appendix A). Two of the principals, Mr. Carter and Ms. Wilson, noted the importance of sharing leadership and involving others in decision making in their written statements. All three principals emphasized positive relationships, supporting staff, building trust in their schools and being a facilitator. All three acknowledged the importance of communication and listening to others, seeking input from

others, and showing respect and care toward others. The written statements provided an initial glimpse into each principal's mental models of leadership.

Leadership Practice. In the interviews, the principals discussed their beliefs and daily leadership practice. The principals described how they went about involving others on a daily basis. Principals were asked to describe a typical day and all three described very hectic, demanding daily schedules where interdependency was not only helpful, but necessary for success. Daily leadership tasks were fairly consistent across all three schools. The most frequently mentioned leadership tasks included leading regular team meetings, maintaining a high level of visibility, visiting classrooms, listening to others, and learning from others.

Mr. Carter was very open to sharing his thoughts and experiences. His beliefs and practices as a principal seemed to value an atmosphere that supports distributed leadership. He talked at length about the importance of surrounding yourself with good people and then trusting those people to do their jobs. He acknowledged the importance of identifying strengths in others and learning from them so that everyone succeeds.

Ms. Wilson described her beliefs in terms of the drastic changes that have occurred in education over the last several years. She also discussed her experiences working with other leaders who had very different leadership philosophies and how those experiences shaped her beliefs over time. This was a common topic among all three principals. Each of them mentioned situations and scenarios where they learned by watching other administrators and how those situations caused them to reflect on their own leadership practice and make different choices.

Mr. Lawson had the most years of experience as an administrator and held the most traditional beliefs of the three principals. He was the only one of the three who mentioned the

importance of keeping some level of control in his own hands. He talked about his struggle with delegating more and letting go of tasks that others could do. However, he was also the most passionate of the three about showing kindness and respect to everyone in his building and creating a positive, caring school climate by modeling how to treat others.

Relationships. All three principals talked at length about the importance of forming positive relationships and caring for staff members. This was a critical element for successful leadership for all three principals. Mr. Carter believed in serving others and sharing leadership.

Ms. Wilson also talked about the importance of sharing leadership and involving all stakeholders. Mr. Lawson stressed the impact of positive relationships and how they empower teachers to become leaders themselves. He believed this does not happen without a pleasant climate and good working environment where people are encouraged. Mr. Lawson believed that being visible and accessible to staff was key in establishing positive relationships, a belief shared by the other two principals.

Trust. Trust was another core element mentioned by all three principals. All three believed trust was necessary to creating a positive environment and for building relationships. Mr. Carter said, “you learn by being around good people. You let people do their jobs and trust they are doing their jobs.” He stated he trusts his staff to do what is best for kids. As each principal explained, one person simply cannot be everywhere at the same time or do everything that needs to be done within a school; the demands are simply too great. Without a certain amount of trust in others, the school would not function successfully. All three principals noted how important it was to seek input from staff and to share this input with central office staff. By

doing this, the level of trust was increased. Leading by example was another way to build trust described by all three principals.

Summary of Qualitative Data

See Table 29 for a brief summary comparing all three principals' beliefs in each of the four main themes.

Table 29
Summary of Qualitative Data

Principal	Mental Models	Leadership Practice	Relationships	Trust
Mr. Carter	Share leadership	Facilitate	Listen to others	Listen and be sincere
Ms. Wilson	Collaboration	Share leadership decisions	Be supportive	Be voice for others
Mr. Lawson	Positive climate	Treat others with respect	Build/encourage others	Visibility

Quantitative Data

The remaining two research questions were addressed through quantitative data sources to determine the teachers' perceptions of distributed leadership in the school and finally how the principals' mental models and the teachers' perceptions were evidenced in the three schools.

Leadership Decision Making. Each principal documented four or five recent leadership decisions, the level of difficulty of the decisions, who was involved in making the decisions and to what extent others were involved in making the decisions. There was some variation in the journal entries among the three principals, although more than one principal documented similar decisions.

Both Paul Carter and Kathy Wilson documented developing the master schedule as an extremely difficult leadership decision. Both involved at least eight to ten people in this decision and noted the others' involvement was critical. Both Paul Carter and Bill Lawson documented implementing the RTI2 model as a recent decision. Mr. Carter classified it as a moderately difficult decision, while Mr. Lawson classified it as an extremely difficult decision. Mr. Carter involved nine others in this decision while Mr. Lawson involved thirty-eight teachers and five district personnel. Ms. Wilson noted involving all teachers in four of the five decisions she documented. Mr. Lawson involved all or most teachers in three of his five decisions, but was also the only principal who documented one decision made entirely by himself that did not involve any others. The journal entries showed that, overall, the three principals do in fact involve others in important decisions but in varying degrees. For two, Ms. Wilson and Mr. Lawson, involving all or most teachers in at least some decisions was critical. Mr. Carter appeared to rely mainly on a small group of teachers and his leadership team when making decisions, rather than a large majority of staff members. Including staff members on major decisions requires trust on the part of the principal. This was the first year in the role of principal for Mr. Carter at Riverview. Perhaps as his time and experience at Riverview increases, he will build more trust with the staff and he will be more comfortable relying on a larger number of people for decision-making. See Table 30 for a comparison of all three principals' journal entries.

Leadership Behavior. Research question two was answered through analysis of The Organizational Climate Description for Middle Schools survey (Hoy et al., 1996) administered to 65 teachers at the three schools. The survey provided evidence of how leadership practice and

relationships were perceived in the school by examining principal and teacher behavior. The OCDQ-RM included six subtests or dimensions: supportive principal behavior, directive principal behavior, restrictive principal behavior, collegial teacher behavior, committed teacher behavior, and disengaged teacher behavior. Mean scores of all six dimensions on the OCDQ-RM at all three schools are compared in Figure 2. See Table 31 for descriptive statistics.

In addition to descriptive statistics, a one-way ANOVA was computed to compare the mean scores of the six dimensions for each of the three schools. A significant difference was found among the schools on committed teacher behavior ($F(2,62) = 7.03, p < .05$), directive principal behavior ($F(2,62) = 7.99, p < .05$), and disengaged teacher behavior ($F(2,62) = 13.75, p < .05$).

Tukey's *HSD* was used to determine the nature of the differences between the schools. This analysis revealed that committed teacher behavior at Riverview scored significantly higher ($m = 30.41, sd = 3.11$) than at Cedar Hills ($m = 26.14, sd = 4.46$); $p < 0.002$. Scores for committed teacher behavior at Ridgewood ($m = 29.62, sd = 4.34$) were significantly higher than at Cedar Hills ($m = 26.14, sd = 4.46$); $p < 0.016$. Scores for directive principal behavior at Cedar Hills ($m = 13.32, sd = 3.00$) were significantly higher than at Riverview ($m = 9.86, sd = 2.76$); $p < 0.001$. Scores for directive principal behavior at Ridgewood ($m = 12.48, sd = 3.19$) were also significantly higher than at Riverview ($m = 9.86, sd = 2.76$); $p < 0.015$. Ridgewood ($m = 14.76, sd = 3.03$) scored significantly higher on disengaged teacher behavior than at Riverview ($m = 10.64, sd = 1.73$); $p < 0.000$. Cedar Hills ($m = 13.54, sd = 3.02$) also scored significantly higher on disengaged teacher behavior than at Riverview ($m = 10.64, sd = 1.73$); $p < 0.002$. No

significant difference was found among the schools on the dimensions of supportive principal behavior, restrictive principal behavior, and collegial teacher behavior.

Table 30
Comparison of Leadership Decisions

Leadership Decision	1 Administrator Only	2 Leadership team members	3 Leadership team; district personnel	4 Multiple teams/grade levels represented	5 All stakeholders represented
Master schedule			Paul Carter	Kathy Wilson	
Teacher assignments				Kathy Wilson	
Classroom placement				Kathy Wilson	
RTI2 model			Paul Carter	Bill Lawson	
Inclusion				Paul Carter	
PLC Teams			Paul Carter		
Bell				Kathy Wilson	
Seminar time				Kathy Wilson	
BYOD				Bill Lawson	
ROSR				Bill Lawson	
Staff termination			Bill Lawson		
Restroom issue	Bill Lawson				

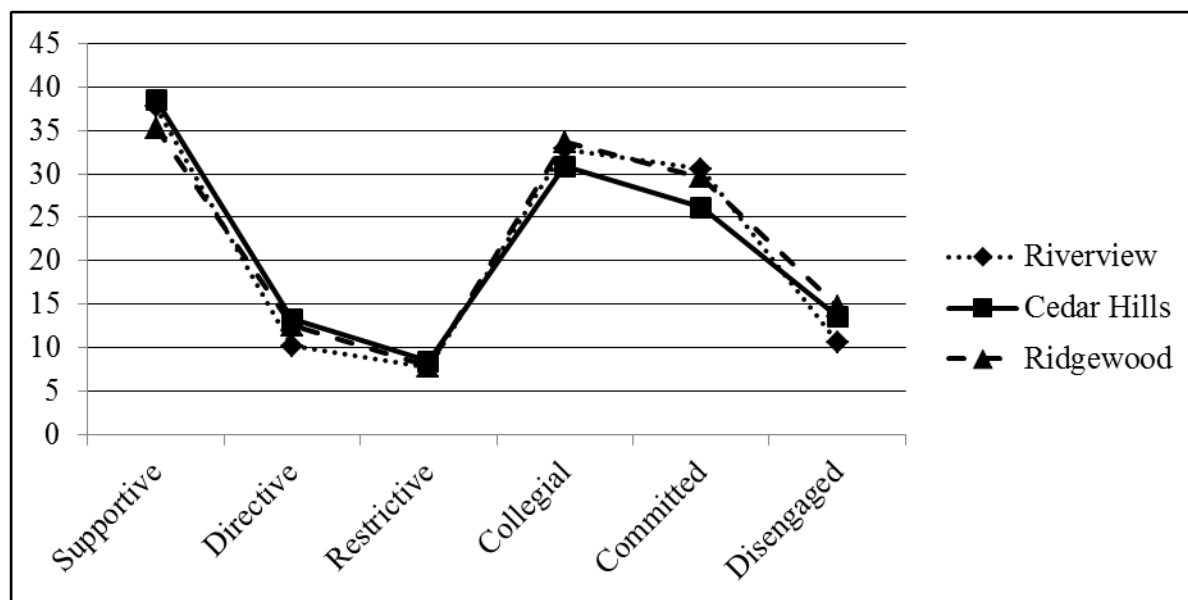


Figure 2. Comparison of mean scores on OCDQ-RM across all three schools.

Table 31
Descriptive Statistics for OCDQ-RM

School/Principal	Dimension	N	Minimum	Maximum	Mean	SD
Riverview/Carter	Supportive	22	27.00	44.00	37.36	4.62
	Committed	22	23.00	36.00	30.41	3.11
	Directive	22	4.00	16.00	9.86	2.76
	Collegial	22	22.00	44.00	32.23	5.00
	Disengaged	22	9.00	16.00	10.64	1.73
	Restrictive	22	2.00	13.00	7.64	2.89
Cedar Hills/Wilson	Supportive	22	26.00	44.00	38.50	4.91
	Committed	22	18.00	34.00	26.14	4.46
	Directive	22	9.00	19.00	13.32	3.00
	Collegial	22	14.00	42.00	30.82	5.38
	Disengaged	22	9.00	21.00	13.55	3.02
	Restrictive	22	4.00	14.00	8.45	2.84
Ridgewood/Lawson	Supportive	21	14.00	44.00	35.24	6.59
	Committed	21	21.00	35.00	29.62	4.34
	Directive	21	8.00	20.00	12.48	3.19
	Collegial	21	21.00	41.00	33.62	5.18
	Disengaged	21	10.00	20.00	14.76	3.03
	Restrictive	21	4.00	14.00	7.86	2.61

Leadership Trust. Research question three was answered through analysis of survey data (Omnibus T-Scale), journal entries, and interviews. The Omnibus T-Scale (Hoy & Tschannen-Moran, 2003) measures the various dimensions of trust in a school including faculty trust in principal, faculty trust in colleagues, and faculty trust in clients (students and parents). The survey was administered to sixty-five teachers at the three schools. Surveys were scored using strategies outlined by Hoy. The whole school faculty trust subscale scores were calculated from a mean of means score by dimension items. To address the purpose of this study, only the subscale of trust in principal was reported. Descriptive statistics for the Omnibus T-Scale are shown in Table 32 for the subscale of trust in principal for each school.

Table 32

Descriptive Statistics for Trust in Principal Subscale – Omnibus T-Scale

School/Principal	Subscale	N	Mean	SD
Riverview/Carter	Trust in Principal	22	5.64	.42
Cedar Hills/Wilson	Trust in Principal	22	5.60	.45
Ridgewood/Lawson	Trust in Principal	21	5.35	1.03

In addition to descriptive statistics, a one-way ANOVA was computed to compare the mean scores of the trust in principal subscale for each of the three schools. No significant difference was found ($F(2, 62) = 1.117, p > .05$).

Summary

Three principals' mental models of distributed leadership were examined to present a description of distributed leadership in practice. Angelle's (2010) model of distributed

leadership for middle schools provided a lens for examining preconditions of leadership practice, relationships, and trust in each of the schools. The qualitative and quantitative findings of this study provided some evidence of distributed leadership in practice at all three middle schools, an area lacking in current research. These findings provided connections between what leaders know (mental models) with what they do (leadership practice and relationships) and how this was evidenced in their schools (through trust).

While each principal had different mental models and leadership practices, the three cases together painted a picture of what distributed leadership looks like, in varying degrees, in actual school environments with all of the demands and challenges faced by today's principals and schools. The principals' beliefs were evident in their daily leadership practice and further supported by the teachers' perceptions of distributed leadership in the three schools.

The final chapter will discuss how schools and leaders might apply findings about distributed leadership to establish positive environments that support high expectations and outcomes for students and commitment and collegiality among staff. Recommendations will be made for future research as well as concluding thoughts on distributed leadership as a promising tool for meeting demands in today's school environments.

CHAPTER 5

DISCUSSION, IMPLICATIONS, RECOMMENDATIONS

The purpose of this study was to describe three middle school principals' mental models of distributed leadership and to examine to what extent the three preconditions (leadership practice, relationships, and trust) from Angelle's (2010) model of distributed leadership for middle schools exist in the three principals' schools.

Principals in today's schools face a multitude of challenges. Collaboration, shared decision making and distributed leadership may provide better ways for leaders to successfully meet these challenges and growing demands. While there has been some research showing the effectiveness of distributed leadership (Angelle, 2010; Harris, 2005a; Harris & Spillane, 2008; Spillane, 2006) several researchers have acknowledged the need for more research on distributed leadership in action or more case study examples (Gronn, 2008; Harris, 2005a; Spillane et al., 2004) to gain an understanding of how distributed leadership actually looks in practice. Findings from this study provided case study examples of three middle school principals successfully meeting daily demands through their strong beliefs in sharing leadership, collaborating with others, learning from others, and creating positive school environments. These beliefs were more than just espoused ideas expressed by principals. These beliefs were evidenced in their daily practice and interaction with and among their colleagues.

Discussion

In Chapter Four, analysis was conducted to answer three research questions:

1. How do three middle school principals describe their mental models of distributed leadership?

2. What are the teachers' perceptions of distributed leadership in the school (i.e. to what extent do the preconditions of leadership practice and relationships from Angelle's (2010) model of distributed leadership for middle schools exist at the three schools)?
3. How are the mental models of principals and the perceptions of distributed leadership of the teachers evidenced in the school (i.e. to what extent does the precondition of trust from Angelle's (2010) model of distributed leadership for middle schools exist at the three schools)?

Data were collected and analyzed from multiple sources including principal interviews, written statements of leadership philosophy, journal of leadership decisions, field notes from site visit observations, and teacher surveys. The theoretical frameworks, serving as a lens through which the study was viewed, were distributed leadership (Spillane et al., 2003) and mental models (Senge, 2006).

Research Question 1: How do three middle school principals describe their mental models of distributed leadership?

The findings from Research Question 1 indicated each of the three principals held strong beliefs regarding sharing leadership, collaborating with others, involving others in decision making and forming positive, trusting relationships. Mr. Carter and Ms. Wilson described leadership philosophies directly connected with sharing leadership and involving others in decisions. Mr. Lawson's stated beliefs were more indirectly connected to sharing leadership. His focus was on creating a positive, respectful school environment, which encouraged and empowered teachers to experience growth from within, strengthening their own leadership skills. All three admitted being a principal was a challenging, demanding career and that one person

cannot meet all the demands on his or her own, but instead, must depend on others to take on responsibility and lead other staff members. All took pride in the accomplishments of their schools and had high regard for their colleagues.

Mental Models. As discussed in Chapter Two, according to Spillane et al. (2004), to understand leadership practice, leaders' thinking, behavior and situation need to be considered together. Mental models provided a framework for investigating leaders' thinking. Mental models are active, shaping how we behave. Askill-Williams et al. (2007) investigated mental models by asking people to reflect on an issue in order to make their thinking available for researcher interrogation. The written statements generated from participants in their study were reviewed, key words were listed, and major themes identified. Ruff and Shoho (2005) conducted a case study of three elementary school principals' mental models of instructional leadership using a combination of methods to uncover mental models including interviews, observations, and a review of artifacts. Leithwood (1998) suggested that the "relationship between internal mental processes and principals' practices seems to be a much neglected area of inquiry, yet vital to an understanding of what principals do" (p. 555-556).

In this study mental models of principals were uncovered using similar data collection methods including a written statement, interview, observation, and journal of leadership decisions. This combination of multiple data sources increased the validity of the study and trustworthiness of the results. According to Yin (2003) by using data triangulation "construct validity is addressed because the multiple sources of evidence essentially provide multiple measures of the same phenomenon" (p. 99). In addition, as described by Anfara et al. (2002),

validity and trustworthiness of a study is increased by disclosing all procedures and decisions in the research process.

The findings from this study revealed mental models were a critical element in distributed leadership, shaping how the principals led, the decisions they made, and how they interacted with others. If the principal's mental models were not strongly connected to a distributed leadership perspective, at least one pre-condition appeared lacking or inconsistent, as was evidenced in the data collected from Mr. Lawson. This finding represents an area for potential reflection and growth among principals incorporating distributed leadership philosophy and practices. As explained by Spillane and Diamond (2007), no five or six-step program for distributed leadership exists for schools to follow. A distributed perspective is descriptive rather than prescriptive, that is, "it frames our efforts, as practitioners and researchers, to examine the phenomena of leadership and management and offers some pointers for how we might move forward" (p. 148). In consideration of this, findings from this study revealed areas for further exploration for all three principals.

Mr. Carter described a leadership philosophy with strong mental models consistent with a distributed leadership perspective. Data indicated the existence of trust and positive relationships. However there were inconsistencies in his daily leadership practice revealed by his journal entries, specifically all documented decisions involved only a small number of leadership team members, rather than a representative or larger number of staff members. These findings offer Mr. Carter an opportunity to reflect, explore and improve on daily leadership practices that would be more consistent with his stated mental models. Mr. Lawson could further reflect on his own mental models, perhaps challenging old ways of thinking with a new

perspective that in turn influences his hesitation to let go of control and more consistently involve others in everyday decisions. Ms. Wilson appeared to have strong mental models and daily leadership practices consistent with a distributed perspective, as well as positive relationships and high levels of trust. She appeared to be leading her school environment utilizing a distributed perspective of leadership. Perhaps a next step for her school would be to examine the impact of the school's distributed leadership practices on student achievement.

Research Question 2: What are the teachers' perceptions of distributed leadership in the school (i.e. to what extent do the preconditions of leadership practice and relationships from Angelle's (2010) model of distributed leadership for middle schools exist at the three schools?

The findings from Research Question 2 indicated teacher perceptions of distributed leadership supported the principals' mental models as evidenced in daily leadership practices and the relationships formed. All three schools had similar results on the OCDQ-RM (Hoy et al., 1996), including high scores in supportive principal behavior, collegial teacher behavior, and committed teacher behavior. All three schools had low scores in directive and restrictive principal behavior and disengaged teacher behavior. These scores indicated a positive school climate at each school and the existence of two of Angelle's (2010) pre-conditions, leadership practice and relationships.

Leadership Practice. Leadership practice is essential to understanding leadership in organizations (Spillane et al., 2004). Leaders' thinking, behavior, and context need to be considered together. Three main categories of leadership practices supported by various researchers include: setting a vision, developing people, and monitoring instruction (Hulpia et

al., 2009; Leithwood et al., 2008; Spillane et al., 2004). Leadership practice, in this study, was examined through teacher perceptions on the OCDQ-RM instrument, journal entries, and observation. Findings suggested all three schools were led by principals whose daily leadership practices were supportive of teachers and staff. The principals listened to teachers and showed genuine care and concern for others. The principals worked hard and led by example.

Relationships. Angelle's (2010) study found positive relationships were critical to distributed leadership. Current demands have forced educators to reconsider current boundaries of school leadership (Militello & Janson, 2007). Results-focused practice has led to the promotion of new models of school leadership, including collaborative practices, requiring positive relationships among members of the school community. Hulpia and Devos (2010) found teachers reported being more strongly committed to the school if the leaders were highly accessible, tackled problems efficiently or empowered teachers to participate, and frequently monitored teachers' daily practices. As positive relationships are built, teachers feel empowered to make decisions and take on leadership roles (Angelle, 2010). Price (2012) found sharing decision-making power with teachers increased job satisfaction and cohesion levels for principals. Research has also shown atmospheres of trust, shared vision, and openness as well as interpersonal relationships between principals and teachers helped to create positive school climates (Price, 2012).

This study's findings showed positive relationships were a priority for all three principals. Teachers confirmed this in their perceptions as measured by the OCDQ-RM with all schools having high scores in supportive principal behavior, collegial teacher behavior and

committed teacher behavior. These high scores indicated positive relationships permeated the school environments and promoted a positive school climate.

Research Question 3: How are the mental models of principals and the perceptions of distributed leadership of the teachers evidenced in the school (i.e. to what extent does the precondition of trust from Angelle's (2010) model of distributed leadership for middle schools exist at the three schools)?

The findings from Research Question 3 indicated high levels of trust at each of the three schools, the final pre-condition from Angelle's (2010) model of distributed leadership for middle schools. Trust in principal was the highest subscale score at each of the three schools.

Trust. Hoy and Tschannen-Moran (1999) defined trust as “an individual's or group's willingness to be vulnerable to another party based on the confidence that the latter party is benevolent, reliable, competent, honest, and open” (p. 189). Baier (1986) defined trust as reliance on others' competence and their willingness to look after rather than harm what is entrusted to their care. Tschannen-Moran and Hoy (2000) concluded from their research that trust is fundamental to functioning in our society and a vital element in well-functioning organizations. Trust is necessary for effective cooperation and communication, which are the foundations for cohesive and productive relationships. Principals play a vital role in promoting and cultivating trust in schools (Cosner, 2010). Principal leadership that fosters trust can help to develop teacher commitment, a necessary condition for facilitating professional community in schools (Bryk et al., 1999). Smylie et al. (2007) found trust was crucial in the development of distributed leadership.

In this study trust was measured by teachers' perceptions on the Omnibus T-Scale (Hoy & Tschannen-Moran, 2003), a measure of trust in schools. All three schools had high scores on the subscale of trust in the principal. Smylie et al. (2007) found trust and principal leadership were crucial in the development of distributed leadership. The relationship between trust and distributed leadership is dynamic and reinforcing. All three principals discussed and documented the importance of trust in other staff members as crucial to the success of their schools.

Distributed Leadership Connections

Angelle (2010) conducted an in-depth case study of one exemplary middle school in Tennessee. The results of her study led to the development of a model of distributed leadership for middle schools with three organizational preconditions (leadership practice, trust, relationships). The results of this study confirmed and strengthened the findings from Angelle's study. All three of the principals in this study emphasized the importance of trust and positive relationships in fostering a school environment conducive to sharing leadership and decision making with others. The three principals described and documented various daily leadership practices that supported collaboration, open communication, and listening to others. The model appeared to be applicable to the three middle schools in this study.

The findings from this study suggested an additional element of importance, principal mental models, as a necessary component for distributed leadership to flourish in middle schools. Mental models shape how we act and what we see. They can limit a person's willingness or ability to change (Reynolds, Murrill, & Whitt, 2006). However, if they are identified and brought to the surface, the mental models can be challenged and refined, bringing about change

in thinking and in everyday practice (Senge, 2006). As school leaders are faced with increasing pressure to share leadership among many in their schools, reflective practice is essential to adopt new ways of thinking about leadership that can then spread to others. Leaders need to become aware of their mental models and how these influence their daily leadership practices and their interactions with others.

Findings from this study confirmed the key to understanding distributed leadership is to connect what leaders know (mental models) with what they do (leadership practice and relationships) and how this is evidenced in the school (through trust). These key elements provide school leaders with a frame for examining and reflecting on their own beliefs, practices, and leadership strategies to promote moving forward in their growth as leaders utilizing a distributed perspective. These four key elements are shown in a model of distributed leadership connections in Figure 3.

As previously noted, distributed leadership is not prescriptive, but descriptive. The model offers a visual description of the key elements that school leaders can reflect on as they move toward developing a distributed leadership mindset. The element of “mental models” is at the top of the model because a principal’s mental models are crucial to successfully developing the remaining elements. As mental models are examined and changed to reflect a distributed leadership mindset, this leads principals to embrace and employ leadership practices consistent with a distributed leadership perspective. These practices (such as sharing decision making, involving others in all aspects of the school, collaboration and communicating, letting go of control) help to contribute to the development of more positive relationships being formed, which in turn, help to increase the level of trust among staff in the school. As the level of trust

increases, this leads to further reflection and examination of mental models which lead to even more improvements in practice, relationships, and trust and the cycle continues. The model offers a description of distributed leadership in a visual form but also a model of how distributed leadership is a continual growth process that leaders can always work to improve. Principals become aware of the key elements, as shown in the model, and they are able to focus their attention on these specific areas.

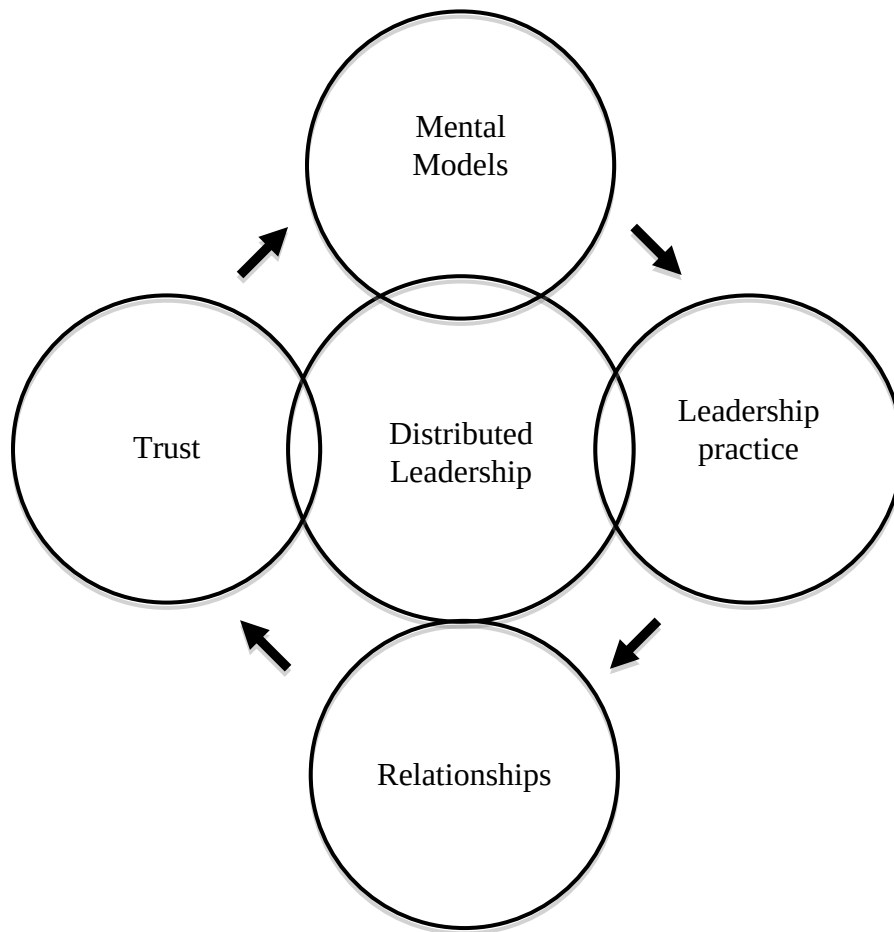


Figure 3. Model of Distributed Leadership Connections

Distributed leadership is not an endpoint, but a continuum. Some elements may be stronger than others for some principals. This was evident in this study. For example, Mr. Carter had strong mental models, but his leadership practices were somewhat inconsistent in that he shared decision making mainly with a small group of staff members rather than many. The level of trust among staff was high and positive relationships permeated the school. In consideration of the model, Mr. Carter could reflect and focus attention on his leadership practices and how to align them more consistently with his mental models. As he does this, he will see relationships improve, the level of trust increase, and he will feel more comfortable and confident in engaging in leadership practices that involve many others.

Mr. Lawson could apply the model by reflecting more on his mental models and how as times and demands have changed in the school environment, his mindset must change as well in order to successfully meet all the demands. This will encourage leadership practices that involve many others, letting go of some control, and trusting in others' expertise. This will continue to build the positive relationships Mr. Lawson values and desires and will continue to lead to improvements in the level of trust at his school.

Ms. Wilson can reflect on the positive strides she has made at her school in involving others in decisions and developing positive relationships and high levels of trust. She can continue to reflect on her own mental models and discover ways to improve as she and her staff work toward leading her school and improving student achievement.

As the model depicts, distributed leadership is a continual process in which growth and change develop through reflection and refinement. Leaders reflect on their mental models, re-examining them, which leads to changes to their everyday practice. This in turn, leads others in

the school to take on leadership roles, interacting together to develop new routines and tools for functioning collectively for the success of all.

Implications

The results of this study point to implications for principals, teachers and other professionals, educational leaders, and educator leadership training programs. The study provided case study examples of what distributed leadership looks like in real school environments and the necessary elements for it to flourish and grow. The study pointed to the need for greater understanding of one's own mental models and leadership practices.

Findings from this study inform principals about how to move toward a distributed view of leadership. The findings and model provide principals with specific areas to focus on for continuous growth in themselves and in their schools. Principals are better informed of the crucial role mental models play in developing a distributed leadership perspective. They have a greater understanding of the need to continually reflect on one's own mental models, re-examining them as necessary to challenge old ways of thinking. They have a greater understanding of the benefits of leadership practices that support and encourage others to be involved in the leadership activities and routines of a school. The findings inform principals of the importance of communicating and collaborating with others and developing strong, positive relationships with staff in their schools. This will lead to increased levels of trust and will expand leadership roles and routines to include many others within the school. This is of particular benefit to principals, who simply cannot do it all in today's school environments. The challenges and demands are too great. Principals need to be able to lead with others, rather than lead on their own.

The findings from this study inform teachers, counselors, assistant principals, and other staff members of the various elements necessary for distributed leadership in middle schools and how they can be part of that process, sharing in leadership routines. They gain an understanding of mental models and how they too can and should reflect on their own practices and how their particular areas of expertise can be used to lead in their schools. This knowledge can assist teachers as they also develop skills in working with others in professional learning communities and empowering teachers to be involved in leadership decisions and contributing to the positive climate in their schools.

Findings from the study suggest school leaders and staff members need time for self-reflection and tools for promoting shared leadership, such as time to meet together. Collaboration and shared decision making can only happen when interaction is promoted and built into the school day. This is an important aspect for school and district leaders to consider as professional development is planned throughout the school year.

School and district leaders are better informed of the role mental models play in the understanding and development of distributed leadership. This knowledge will help district leaders support principals by providing professional development, coaching, or mentoring to assist principals in reflecting on their daily practice, acknowledge their beliefs, and hone ideas to better support a collaborative environment where staff and students are successfully meeting demands. Educational leadership training programs are better informed of the key elements necessary for developing distributed leadership thinking and practices and can use this knowledge as they train new and aspiring educational leaders. Principal preparation programs should work to help leaders focus on interactions with others and “develop a distributed mindset,

helping principals to think about leadership practice and to think about it from a distributed perspective” (Spillane, 2006, p. 99).

Recommendations

This study added to the knowledge base of both distributed leadership and mental models. Several researchers acknowledged the need for more research on distributed leadership in action or more case study examples (Harris, 2005a; Spillane et al., 2004) to gain understanding of how distributed leadership actually looks in practice. Angelle’s (2010) model of distributed leadership in middle schools suggested “necessary pre-conditions for successfully distributed leadership include a strong collaborative leaders who practices shared decision making; a culture where trust permeates the organization; and continuous building of strong, positive relationships” (Angelle, 2010, p. 13). This case study of three middle schools provided evidence to support Angelle’s model and evidence to support principal mental models as an additional important element necessary for the successful development of distributed leadership in schools.

Recommendations for future research in distributed leadership include applying these findings to additional schools in other regions of the United States as well as at the elementary and secondary levels. Additional research should also be conducted on the mental models of principals and how educational leadership training programs could use this knowledge to support the development of beliefs promoting collaboration and working with others to share leadership. Mental models can be changed using skills of reflection and skills of inquiry (Senge, 2006). Skills of reflection slow down our thinking processes so we can become more aware of how we form our mental models and the ways they influence our actions. These skills can be taught to

new and practicing principals to further develop and define their beliefs and explore how these beliefs shape and direct daily leadership practice.

The findings from this study indicated all three preconditions existed in one school, Cedar Hills, which was also led by a principal, Ms. Wilson, who had strong mental models supporting a distributed leadership perspective. When this is the case, and a school appears to have all the necessary elements of distributed leadership in place, how does this impact student achievement over time? Further research should be conducted to explore the link between distributed leadership and student achievement, as only a limited number of studies exist in current research (Heck & Hallinger, 2009; Jacobson, 2011; Leithwood, Patten, & Jantzi, 2010).

Conclusion

Distributed leadership is a promising approach to meeting demands in today's complex school environments. This study made a connection between beliefs, knowledge, and behavior and much needed evidence about what distributed leadership looks like in the real world of three middle schools in a southeastern state. Distributed leadership and mental models provided a lens for better understanding a complex phenomenon. Findings suggested when principals have strong mental models supporting distributed leadership and daily leadership practices that include sharing leadership decisions, developing trust, and forming positive relationships, a positive school climate results.

Schools are faced with a multitude of challenges. School leaders must be prepared to face challenges on a daily basis. In today's complex school environments, leaders must be able to effectively reflect on their own practices, collaborate with others and distribute leadership

among other staff in their buildings to be successful. One person simply cannot do it all. School leaders must take a team approach, trusting and working with others to meet demands.

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Appendices

Appendix A

The School Characteristics Checklist

Name of middle school: _____

Rank this middle school on the following four characteristics based on the scale below:

1=no evidence 2=little evidence 3=moderate level exists 4= high level exists

Characteristic	Score			
Interaction of multiple leaders	1	2	3	4
Interdependency	1	2	3	4
Leadership stretched over work of many	1	2	3	4
Variety of expertise	1	2	3	4

Explanation of each characteristic:

#1: Interaction of multiple leaders refers to multiple leaders in the school collaborating and interacting together on a regular basis to make decisions.

#2: Interdependency refers to the trusting relationships in a school that allows for multiple people to share leadership responsibilities.

#3: Leadership stretched over the work of many means that leadership tasks are performed through the interaction of multiple individual leaders.

#4: Variety of expertise refers to distributing power and allocating tasks to individuals who hold the greatest expertise in a particular area.

Appendix B

Personal Leadership Philosophy for Principals

Please describe your personal leadership philosophy. (A personal leadership philosophy should describe the way you see yourself as a leader. It guides one's actions, behaviors, and thoughts. Explore and reflect on your personal values, assumptions, and beliefs about leadership).

[illegible]

Appendix C

Interview Protocol for Principals

1. How long have you been in education? How long have you been a principal? How long have you been a principal at this school? How have you seen the practice of leadership change since you were trained as a principal?
2. Describe your typical day. What kinds of activities are included in your schedule each day?
3. What is your philosophy of leadership? How would you describe your leadership style?
4. Describe ways you collaborate with other staff members. Describe ways you share leadership with others.
5. Tell me about a time you shared leadership with someone else. What was the experience like?
6. With whom do you share leadership? What kinds of characteristics do you find in people with whom you share leadership?
7. How has your philosophy of leadership changed over time?
8. What are the expectations for administrators in your district when it comes to sharing leadership?
9. What is important to you as a leader of this school? How do you show that in action?
How do others in the school know this is important to you?
10. What kinds of successes have you had in sharing leadership? What kinds of problems have you experienced?

11. Suppose you had the perfect environment to share leadership with others in your school.

What would that look like?

12. Some principals prefer to have every aspect of a school under their own control. What would you say to them?

Appendix D

Journal Template

Describe five decisions in key areas such as curriculum, safety, teacher evaluation, budget, discipline, community/parent engagement, building/grounds, etc. during a two-week time period.

Rate the decision's difficulty on a scale of one to three. Then put a check in each box indicating who was involved in making this decision with you and to what extent was the person involved.

1. What was the decision #1 about?

2. How difficult was decision #1? (circle one)

1=not at all difficult

2=moderately difficult

3=extremely difficult

3. Who was involved in decision #1 with you and to what extent?

Other person/people involved in making the decision with you	Put a check in the box (and the number if more than one) for each person involved in making the decision with you	To what extent were they involved in making the decision? (circle one) 1=somewhat involved 2=moderately involved 3=this person's involvement was critical
Teacher(s)		1 2 3
Leadership team member(s)		1 2 3
Community member or parent		1 2 3
District personnel		1 2 3
Other-please describe		1 2 3

Appendix E

Observation Checklist

Distributed Leadership Characteristic	Observed Occurrences
Interaction of multiple leaders	
Interdependency	
Leadership stretched over work of many	
Variety of expertise	

Appendix F

Omnibus T-Scale

Omnibus T-Scale

Directions: Please indicate your level of agreement with each of the following statements about your school from **strongly disagree** to **strongly agree**. Your answers are confidential.

	Strongly Disagree	Disagree	Somewhat Disagree	Somewhat Agree	Agree	Strongly Agree
1. Teachers in this school trust the principal.	1	2	3	4	5	6
2. Teachers in this school trust each other.	1	2	3	4	5	6
3. Teachers in this school trust their students.	1	2	3	4	5	6
4. The teachers in this school are suspicious of most of the principal's actions.	1	2	3	4	5	6
5. Teachers in this school typically look out for each other.	1	2	3	4	5	6
6. Teachers in this school trust the parents.	1	2	3	4	5	6
7. The teachers in this school have faith in the integrity of the principal.	1	2	3	4	5	6
8. Teachers in this school are suspicious of each other.	1	2	3	4	5	6
9. The principal in this school typically acts in the best interests of teachers.	1	2	3	4	5	6
10. Students in this school care about each other.	1	2	3	4	5	6
11. The principal of this school does not show concern for the teachers.	1	2	3	4	5	6
12. Even in difficult situations, teachers in this school can depend on each other.	1	2	3	4	5	6
13. Teachers in this school do their jobs well.	1	2	3	4	5	6
14. Parents in this school are reliable in their commitments.	1	2	3	4	5	6
15. Teachers in this school can rely on the principal.	1	2	3	4	5	6
16. Teachers in this school have faith in the integrity of their colleagues.	1	2	3	4	5	6
17. Students in this school can be counted on to do their work.	1	2	3	4	5	6
18. The principal in this school is competent in doing his or her job.	1	2	3	4	5	6
19. The teachers in this school are open with each other.	1	2	3	4	5	6
20. Teachers can count on parental support.	1	2	3	4	5	6
21. When teachers in this school tell you something, you can believe it.	1	2	3	4	5	6
22. Teachers here believe students are competent learners.	1	2	3	4	5	6
23. The principal doesn't tell teachers what is really going on.	1	2	3	4	5	6
24. Teachers think that most of the parents do a good job.	1	2	3	4	5	6
25. Teachers can believe what parents tell them.	1	2	3	4	5	6
26. Students here are secretive.	1	2	3	4	5	6

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Appendix G

Organizational Climate Description for Middle Schools

OCDQ-RM

Directions: The following are statements about your school. Please indicate the extent to which each statement characterizes your school.

	Rarely Occurs	Sometimes Occurs	Often Occurs	Frequently Occurs	Very Frequently Occurs
1. The principal compliments teachers.	1	2	3	4	5
2. Teachers have parties for each other.	1	2	3	4	5
3. Teachers are burdened with busywork.	1	2	3	4	5
4. Routine duties interfere with the job of teaching.	1	2	3	4	5
5. Teachers "go the extra mile" with their students.	1	2	3	4	5
6. Teachers are committed to helping their students.	1	2	3	4	5
7. Teachers help students on their own time.	1	2	3	4	5
8. Teachers interrupt other teachers who are talking in staff meetings.	1	2	3	4	5
9. The principal rules with an iron fist.	1	2	3	4	5
10. The principal encourages teacher autonomy.	1	2	3	4	5
11. The principal goes out of his/her way to help teachers.	1	2	3	4	5
12. The principal is available after school to help teachers when assistance is needed.	1	2	3	4	5
13. Teachers invite other faculty members to visit them at home.	1	2	3	4	5
14. Teachers socialize with each other on a regular basis.	1	2	3	4	5
15. The principal uses constructive criticism.	1	2	3	4	5
16. Teachers who have personal problems receive support from other staff members.	1	2	3	4	5
17. Teachers stay after school to tutor students who need help.	1	2	3	4	5
18. Teachers accept additional duties if students will benefit.	1	2	3	4	5
19. The principal looks out for the personal welfare of the faculty.	1	2	3	4	5
20. The principal supervises teachers closely.	1	2	3	4	5
21. Teachers leave school immediately after school is over.	1	2	3	4	5
22. Most of the teachers here accept the faults of their colleagues.	1	2	3	4	5
23. Teachers exert group pressure on non-conforming faculty members.	1	2	3	4	5
24. The principal listens to and accepts teachers' suggestions.	1	2	3	4	5
25. Teachers have fun socializing together during school time.	1	2	3	4	5
26. Teachers ramble when they talk at faculty meetings.	1	2	3	4	5
27. Teachers are rude to other staff members.	1	2	3	4	5
28. Teachers make "wise cracks" to each other during meetings.	1	2	3	4	5
29. Teachers mock teachers who are different.	1	2	3	4	5
30. Teachers don't listen to other teachers.	1	2	3	4	5
31. Teachers like to hear gossip about other staff members.	1	2	3	4	5
32. The principal treats teachers as equals.	1	2	3	4	5
33. The principal corrects teachers' mistakes.	1	2	3	4	5
34. Teachers provide strong social support for colleagues.	1	2	3	4	5
35. Teachers respect the professional competence of their colleagues.	1	2	3	4	5
36. The principal goes out of his/her way to show appreciation to teachers.	1	2	3	4	5
37. The principal keeps a close check on sign-in times.	1	2	3	4	5
38. The principal monitors everything teachers do.	1	2	3	4	5
39. Administrative paperwork is burdensome at this school.	1	2	3	4	5
40. Teachers help and support each other.	1	2	3	4	5
41. The principal closely checks teacher activities.	1	2	3	4	5
42. Assigned non-teaching duties are excessive.	1	2	3	4	5
43. The interactions between team/unit members are cooperative.	1	2	3	4	5
44. The principal accepts and implements ideas suggested by faculty members.	1	2	3	4	5
45. Members of teams/units consider other members to be their friends.	1	2	3	4	5
46. Extra help is available to students who need help.	1	2	3	4	5
47. Teachers volunteer to sponsor after school activities.	1	2	3	4	5
48. Teachers spend time after school with students who have individual problems.	1	2	3	4	5
49. The principal sets an example by working hard himself/herself.	1	2	3	4	5
50. Teachers are polite to one another.	1	2	3	4	5

Vita

Leigh Marlar was born in Oak Ridge, Tennessee, grew up in Knoxville, and graduated from Karns High School in 1992. She completed a Bachelor of Arts degree in Psychology in 1999 and a Master of Science degree in Counseling in 2001, both at the University of Tennessee, Knoxville. Leigh began her career as a school counselor in 2002, working in both middle school and elementary school settings. She completed an Education Specialist degree in Educational Administration and Supervision from Lincoln Memorial University in 2005. The Doctor of Philosophy degree in Education with a concentration in Leadership Studies was awarded to Leigh by The University of Tennessee in 2015. She currently resides in Oak Ridge with her husband, McKeever, daughters, Haley and McKinley, and dogs, Bella, Ollie, and Inu.