

Does the Degree of Implementation of the Components of the Middle
School Design Relate to High-Stakes Assessment Scores in Grade 8
Reading and Math?

By

Catherine P. Puttre

A Dissertation submitted to the
Faculty of the Virginia Polytechnic Institute and State University
in partial fulfillment of the requirement for the degree of
Doctor of Education
In Educational Leadership and Policy Studies

Committee:

Dr. M. David Alexander, Co-Chair

Dr. Walter Mallory, Co-Chair

Dr. Thomas Gatewood

Dr. Andrea Bengier

December 13, 2007

Blacksburg, VA

Key Words: Middle School, High Stakes Assessment, Achievement

© 2007 Catherine Puttre

Does the Degree of Implementation of the Components of the Middle School Design Relate to High-stakes Assessment Scores in Grade 8 Reading and Math?

Catherine P. Puttre

ABSTRACT

Does the degree of implementation of the components of the middle-school design relate to high-stakes assessment scores in Grade 8 reading and math? There currently exists a conflict between the advocates of the middle-school components and those who support an abandonment of this philosophy and conceptual model for a more conservative and curriculum centered school structure. The outcome of this study provides valuable data to resolve this debate.

Socioeconomic ratios, minority percentages, and student attendance were controlled for as they impact student achievement. The middle-school concept evolved from a desire to create a more appropriate learning environment which would address the unique needs of early adolescents. Student achievement as demonstrated on the math and reading Standards of Learning tests in Virginia schools should validate this belief.

The data analysis resulted in no significant difference between the reading and math scores on the Virginia state assessment for eighth-grade students in middle schools and eighth graders in other grade configured schools. The socioeconomic status of the student population of the school was the one factor that did impact the students' academic achievement. Math scores were not impacted to the same degree as the reading scores. While this research provides no concrete support for the expansion of the middle-school program, neither is there

support for the assertion that it lacks rigor, and keeps students from achieving academically and therefore should be abandoned.

DEDICATION

This research is dedicated to the valiant teachers who have dedicated their professional lives to the education of early adolescents and to those who were my teachers and who gave me a lifelong love of learning.

ACKNOWLEDGMENTS

I would like to recognize my family and friends for their support during this process. Nothing is accomplished in isolation and this project is no exception. I would like to thank my daughter, Melissa, for her efforts to keep the files straight and to double check the data. My husband Fred, who covered many of the household responsibilities, and my friends who were unfailing in their never-ending encouragement and support.

Finally, but most importantly, are the thanks I give to God who provided me with the ability and resilience to stick with this task to its completion.

TABLE OF CONTENTS

LIST OF TABLES	ix
LIST OF FIGURES	x
CHAPTER 1: THE PROBLEM	1
Context of the Study	1
Statement of the Problem	9
Need for the Study	11
Conceptual Model	13
Research Question	13
Definitions of Terms	14
Development Overview	16
Summary of Chapter 1 and Overview of the Dissertation	18
CHAPTER 2: REVIEW OF RELATED RESEARCH	20
Middle-School Critics	20
Supporters	22
Other Factors	24
SES and Student Achievement	25
Minority Students and Achievement	26
Attendance and Student Achievement	27
Mobility and Student Achievement	27
Summary of Chapter 2	28

CHAPTER 3: METHODOLOGY	30
Introduction	30
Population.....	30
Instrumentation.....	32
<i>Construction of the Instrument</i>	32
<i>Reliability Checks</i>	34
<i>Clarity</i>	34
<i>Survey Scoring</i>	35
Data Collection Procedures	35
Research Questions	36
Analytical Procedures.....	37
Chapter Summary	38
CHAPTER 4: RESULTS	40
Introduction	40
Research Question	40
Analytical Procedures.....	41
Summary.....	46
CHAPTER 5: CONCLUSIONS AND DISCUSSION.....	48
Summary.....	48
Discussion of Results	48
Implications for Further Research	51
Conclusions	52

Implications/Recommendations	55
REFERENCES	57
APPENDIX A: LEVEL OF IMPLEMENTATION OF THE COMPONENTS.....	61
APPENDIX B: DOMAINS AND RELATED SURVEY QUESTIONS.....	62
APPENDIX C: CONTENT VALIDITY RESPONSE GRID.....	63
APPENDIX D: PRINCIPAL’S SURVEY OF MIDDLE SCHOOLS’ IMPLEMENTATION LEVEL	65
APPENDIX E: LETTER FOR STUDY PARTICIPATION.....	69
APPENDIX F: RESPONSE POSTCARD.....	71
APPENDIX G: FOLLOW-UP LETTER.....	72
APPENDIX H: FINAL FOLLOW-UP LETTER.....	73
APPENDIX I: DATA ANALYZED FOR STUDY.....	74

LIST OF TABLES

Table 1 Historical Development of Middle Schools	17
Table 2 Grade Level Configurations in Study.....	31
Table 3 Item Validation by Domain Area	33
Table 4 Alpha Reliability Coefficients for the Predictor Variables	34
Table 5 Variables and the collection and analysis outline for research project	39
Table 6 English, Math, Control Variables and Survey Components Descriptive Statistics.....	42
Table 7 Pearson Correlations.....	44
Table 8 Effect Size with Relation to Reading and Math Scores.....	46

LIST OF FIGURES

<i>Figure 1.</i> Conceptual model that includes the domains of the middle-school model and the controlling factors in this study.	13
--	----

CHAPTER 1: THE PROBLEM

This study has as its focus the relationship between the success rate of eighth-grade students on the high-stakes assessments in reading and math in the state of Virginia and the level of implementation of the middle-school program components at the schools which they attend. There is a current movement which advocates a return to the K through 8 grade configuration and an abandonment of middle schools as we currently recognize them.

Context of the Study

Historically, adolescents and the structure in which their learning will best take place has been a subject of study and innovation. As early as 1909, educators in Columbus, Ohio and Berkeley, California recognized that this unique age group required something different and the development of junior high schools began (David, 1998). The basic motive for the change from a two tiered elementary–secondary design to this inclusion of the junior high was the need for more students to attend secondary schools in order to prepare for the changing work force of the 20th century (Hough, 1995). During the next 50 years, junior high schools emerged, initially at a rapid rate which slowed during the 30s and 40s and then this mid-level began to be questioned in the 1950s. Grades 7 and 8 and sometimes Grade 9 were housed in separate buildings and instruction was delivered much the way it was in the senior high schools. Staff was organized around curriculum areas and the focus was content.

The next significant modification came in 1950 when the Bay City, Michigan, school district made the move to a middle school where they opted to add a developmental component which was recognized as necessary for early adolescents and their unique needs. A philosophy known as “the life-adjustment movement” which supported socialization in

schools was supported by many educators. For several decades to come, the focus shifted to the social and emotional needs of early adolescents. Advisor/advisee programs evolved: “The purpose of this program is the development of close trusting relationships between students and adults and to increase engagement with learning and feelings of positive self-esteem and belonging” (NMSA Research Summary, 1996a, p. 1).

It was William Alexander who gave the name “middle school” its origin at a speech he delivered at Cornell University in 1963 (David, 1998). Beginning in the 1960s and continuing into the 90s, a movement started and continued to pick up momentum for the development and implementation of a middle-school design which was developmentally appropriate for young adolescents and their evolving social and emotional needs. According to Hough (1995),

Traditional junior highs, which reached their peak in the early 1970s, have since experienced a steady decline and now account for only a quarter of middle grades enrollment....Research and ethno-graphic studies over the last ten years have contributed to the current belief among many middle-level educators that middle schools should have a 6-8 span, including the sixth grade but not the ninth. (p. 8)

Early in this movement, researcher Edward Olsen proposed that the schools of the future would address both high levels of student achievement and the holistic development of young adolescents (Felner, Jackson, Kasak, Mulhall, Brand, & Flowers, 1997).

Evolving middle schools were to be organized differently. Teachers would work in academic teams and an identifiable group of students would be their sole responsibility.

Teams would develop their own identities and students would be part of a small definable group as opposed to the much larger school community. As Jackson and Davis reported, “For teachers, teams provide a collaborative and supportive work group. For students, teams offer stable relationships with teachers and peers” (p. 4). Instruction would be both thematic and integrated. There was to be a well-developed advisor/advisee program which would provide the student an advocate who knew him on a personal level. There would also be the opportunity for students to explore other areas of study beside the core curriculum. As reported in the NMSA Research Report (1996b) “Exploratory programs capitalize on the innate curiosity of young adolescents, exposing them to a range of academic, vocational, and recreational subjects for career options, community service, enrichment, and enjoyment” (p. 2). Parent involvement would be expanded and encouraged. Epstein (1976) developed a typology which included 6 categorizations of parent involvement: (a) parenting. (b) communicating. (c) volunteering. (d) learning at home. (e) decision making. and (f) collaborating with the community.

These components were included in William Alexander’s presentation at Cornell University Junior High School Conference in Summer 1963 (David, 1998). “Seven key developmental needs characterize early adolescence: positive social interaction with adults and peers, structure and clear limits, physical activity, creative expression, competence and achievement, meaningful participation in families, school and finally, communities, opportunities for self-definition.” (NMSA Research Summary, 1996a, p.1)

“A scientific theory” known as “brain periodization” or the “plateau learning theory” was introduced to the educational arena in the late 1970s. It claimed that brain growth in

children 12 to 14 reaches a plateau...and teaching complex material during that period will have damaging effects on children (Epstein & Toepfer, 1978). Middle-school practitioners embraced this belief but rejected it in the early 1990s when it was no longer deemed valid. Critics, however, continue to use this as the foundation for their claim that middle schools are not academically rigorous but solely concerned with the social-emotional development of their students.

Alexander's vision (1963) for the middle grades was given unqualified support when the Carnegie Foundation presented its research findings and supported the middle-school movement in its landmark study, "Turning Points: Preparing Youth for the 21st Century" in 1989. The middle-school movement was validated and middle schools secured a place of their own in the educational arena. Reform was now the battle cry and the middle school moved to the forefront with regard to educational research. However, as the 21st century approached, criticism of the middle-school movement began to gain momentum as well. According to David (1998), "Though the junior high school was originally conceived and carried out as a downward extension of secondary education, the modern junior high school despite its label—now appears to be increasingly an upward extension of elementary education" (p.103). Brockett (1999) is a vocal critic of the middle-school design and the movement to accelerate middle-school reform. She cites the Southern Regional Education Board as calling the middle grades "the weak link in American Education" (Brockett, p. 2). In the same Web review, *Why Middle Grades Reform* (Middle Web, ¶ 2), the editor goes on to state that "The truth is, very few middle schools anywhere in America provide a sufficiently rigorous and challenging academic environment for their students." (as quoted in Middle

Web, ¶ 4). Padrini (2002) reported that “by the mid-90s, schools that were once praised for their team teaching, flexible schedules, and interdisciplinary instruction found themselves under attack for placing too much emphasis on creating a nurturing environment for students and too little on their academic progress”(p. 6).

At the close of the 20th century, a new movement appeared on the scene and high-stakes testing took control of the educational focus. District leaders and building administrators now had the task of meeting standards that are predetermined by outside agencies. The question being asked at the middle-school level is “Will our adolescent students meet this challenge if they are taught within the parameters of the middle-school design, particularly thematic instruction and interdisciplinary units, or will educators at this level revert to more traditional content- based instructional strategies in order to meet the standards?” Even more meaningful, will the resources used to support the middle-school program be diverted to support drill or practice sessions and remediation with an eye on passing these tests as opposed to advisor/advisee and exploratory programs so vital to a true middle school which is concerned with adolescent development, as well as academic success. The basic question remains, how do schools adhering to the middle-school design compare to those in the junior high school mode or other grade configurations with regard to test outcomes. This is the focus of this research. If in fact, adolescents taught within the framework of the middle-school design components are more successful in regard to accountability testing, then the reform movement should be given renewed support. If this is not the case, researchers and theorists need to determine which components of the middle

school design should be modified, or should a new component be incorporated to make middle grades more effective with regard to rigor and student achievement.

At the National Conference held in Washington, DC in 2001 contemporary theorists in the field, Thomas Erb, James Beane, and Chris Stevenson continued to support the theory that students who learn within the design of the middle-school program will do better than those who are taught in the traditional junior high school model. James Beane has long been a very vocal supporter of interdisciplinary thematic instruction and its effectiveness with young adolescents. The connections presented in this way lead to higher level thinking skills which will be critical in higher education and life. In his session at the National Middle School Conference in 2006, he reaffirmed his belief that students taught thematically do better on any standardized or high-stakes test. His position was reaffirmed by Gayle Davis at this same conference. Erb (2001) states that “One of the most powerful lessons of the past decade is how important it is to implement multiple elements of middle grades reform and maintain those elements over time in order to see positive outcomes for students” (p.4).

The leaders in the middle-school movement firmly adhere to the belief that experiential, thematic and integrated instruction yields better results than the content specific, fact based approach. By teaching content from multiple curriculum perspectives, students have more than one way to store and retrieve the information. This is a good model with regard to adolescent thinking. Recent research conducted by Jadallah in Utah in 2005 and Goodman in Missouri in 2006 address the reform movement, its implementation, and the degree of commitment on the part of administrators and teachers. Very little research has been found to support the specific claim that achievement scores are higher when adolescents are

taught in the middle-school setting than when they are taught in a traditional junior high school environment which is organized around curriculum areas.

Many reports are anecdotal in nature and describe the perceived benefits and drawbacks of various grade configurations. Research is sparse which attempts the more difficult task of determining if a cause-effect relationship exists between grade configurations and academic achievement, while controlling for variables like school size, student socioeconomic status, teacher experience and the like. (Wihry, Coladarci, & Meadow, 1992, p. 61)

Much of the recent research stems from special projects, such as the efforts of the Center for Collaborative Education which is supporting the transformation of middle schools to the Turning Points principles and practices which align with the middle-school philosophy and design. Schools participate in the effort to become one of these Turning Points Schools in order to improve student learning. These studies collected both qualitative and quantitative data. All showed improvement in test scores. These studies were comprised of Illinois Middle Schools (Project on High Performance Learning Communities, 1991), Michigan Middle Start Initiative (1994), and Boston, Massachusetts Middle Schools (Comprehensive School Reform Program, 1999). These are highly supported and monitored implementation studies and compare growth for the individual schools as well as to comparative results for schools operating outside the study. Special projects tend to create artificial environments and enjoy additional resources. In an interview with John Norton, Anthony Jackson, coauthor of *Turning Points: Educating Adolescents in the 21st Century*, acknowledged “there has been an overemphasis on the structural and organizational kinds of changes and a lack of emphasis on

changes in teaching practice and the actual work of creating and implementing more powerful forms of assessment, instruction, and curriculum” (as quoted in Norton, 2000, p. 19). He goes on to say, “...structural changes are important and necessary, but they are not sufficient” (Norton, p. 20).

A representative of those less enamored of the middle-school reform movement, Ruth Mitchell, a senior researcher at Education Trust, took a different direction in her comments regarding the middle-school reform movement. She states that

we should abandon the whole middle-school concept. Middle schools are a disaster. They slow down the intellectual progress that kids make in elementary school, and they effectively preclude readiness for college for many minority kids. There are lots of reasons, but two major ones are a mistaken belief that early adolescents can't learn because of hormonal changes and the number of middle school teachers who teach with elementary licenses and lack the qualifications to teach the subject matter to students at this level. (as quoted in Brockett, 1999, p. 4)

The first reason stated reflects back to the “brain periodization” theory which was abandoned in the early 1990s as being invalid, however, Mitchell’s second concern with inadequate teacher preparation is also a concern of those who advocate for the middle school. The No Child Left Behind (NCLB; 2001) legislation addresses the competency of teachers with its mandate for highly qualified teachers. As for the concern regarding lack of rigor and intellectual receptivity at this age, highly implemented middle schools present a rigorous and comprehensive curriculum. Finally, Middle Web, a Web site that presents current trends and issues regarding the Middle School, supports the misconception that rigor is missing in the

middle grades: “The truth is, very few middle schools anywhere in America provide a sufficiently rigorous and challenging academic environment for their students” (Middle Web, 2002, p.1). MiddleWeb additionally states that

From the point of view of the Edna McConnell Clark Foundation, the goal of reform is both simple and daunting: Every student should be able to meet high standards in mathematics, science, reading, and social studies by the end of eighth grade. To reach that goal, the Foundation believes, educators and communities must first face the hard reality that current practices do not produce the results students need. Only principals and teachers can change these practices. Rather than focus obsessively on what they do not control, educators need to recognize what they do control and use the power they have to reform themselves and their schools in ways that will increase student achievement. (MiddleWeb, ¶ 6)

If what has been just said is true, and the research is often the result of special situations, then we need to look critically at the design and effectiveness of the middle school with regard to student achievement.

Statement of the Problem

In this current climate of accountability, it is important for school principals to know that they are providing the best possible learning environment for the students in their care. The advocates of the middle-school concept provide a plethora of information and very positive literature. The National Middle School Association (2001) compiled the works of 12 current leaders in the middle-school field. They each support the middle school renewal

movement and wrote about the positive aspects of the various components of the middle-school design and its benefits to the young adolescents. Ross Burkhardt champions the Advisor/Advisee component; Chris Stevenson expounds on the need for a challenging and exploratory curriculum; and Marion Payne shares her belief that a positive climate supports student learning. Each of the components of a true middle school: advisor/advisee program, interdisciplinary teacher teams, block planning for teachers, integrated thematic instruction, parent involvement, exploratory opportunities and heterogeneous grouping are believed to contribute to a learning environment which will provide adolescents with the climate in which they can learn and succeed. They are present in each of the surveys done over a period of 25 years to monitor the state of middle schools and the expansion of the program design. The components also provide the teachers with a structure in which they can become more knowledgeable and understanding of each of their students as well as the interrelationship of all curriculum areas.

The consistency of expectations and procedures which results from teaming simplifies learning for all three stakeholders: students, teachers, and parents. The relationship of the middle school design and student achievement is implied but not directly stated. The second Turning Points Report comes close when it states that “We present a model of middle grades education that we believe has the potential to enable virtually all young adolescents to meet our highest expectations, if we have the will, the energy, and the devotion to equity and fairness required to transform our current institutions” (Carnegie Foundation, 2000, p. 10). The glaring lack is in the area of empirical data to support the claim that this organizational design actually does provide for increased student achievement. The claims of high levels of

achievement, if supported by statistical data, would reinforce the middle-school principals' belief that they are providing students with the best possible learning environment. Pressures to improve test scores, to meet predetermined criteria, and to maintain high standards of achievement would not then lead to a modifying of the current middle-school design or a return to the departmental organizational models which are the structure of a junior high school.

This trend to move away from the fundamental middle-school design is becoming apparent in some areas. A strong voice is developing for the rebirth of the K-8 school. "The ideal setting for quality middle-level education is what Hough calls "elemiddle" schools—those that include both primary and middle grades where the focus on implementing effective middle-level programs is in place" (Padrini, 2002, p. 10). Before this trend gains momentum and prevails, it would be beneficial to know the impact that the middle school is having on student success with regard to state assessments.

Need for the Study

The National Middle School Association (2001) reports that in 1973 there were 2,300 middle schools and that by 2003 the number had risen to 16,000. Among its supporters, the impetus prevails to move to a Grade 6 through 8 middle school, organized into smaller units or teams. The 6 through 8 school is the predominant grade configuration as demonstrated in the 1993 survey results which supported the data of earlier surveys. (George & Shewey, 1993) It is vital to validate student success in order to give support to this organizational structure and to give additional impetus to the renewal movement. According to NMSA Research Summary (1996b), "A prodigious amount of literature exists on middle level

schools and practices, however, far less research exists that documents improved student achievement and school variables. No national study has been conducted of the relationships between student achievement data and middle school factors” (p. 4).

There presently exists some concern and controversy over the middle-school design and the reform movement that generated it. In the spring of 1999, the Southern Regional Education Board referred to the middle grades as the “weak link in American education.” (Brockett, 1999, p. 19).

Others, including Paul George and John Lounsbury, indicate that a renewal of the commitment to the transition to and implementation of the middle-school format is urgently needed. This is the focus of Lounsbury’s (2000) article, “This We Believe...And Now We Must Act”, sums up the commitment of the 12 authors who contributed to this work. Each of these educators is well known for their support of the middle-school concept.

At the National Middle School Conference in November 2001 the overall theme and the specific focus of sessions led by such theorists as Gayle Davis and Thomas Erb, was that the movement toward renewal needs to be revitalized and energized so that the momentum continues. Still there are those who express the belief that current outcomes have not proven that the components as originally identified are effective. Without quantitative data to support the belief that student achievement is increased where the middle-school design is fully implemented, as opposed to those schools still operating under the junior high or departmental model, no definitive conclusion regarding effectiveness can be reached.

One specific area of controversy at this time is the effectiveness of thematic instruction with regard to accountability testing. Data is not currently available to either

support the implementation of integrated thematic instruction or to prove its ineffectiveness in the current climate of high-stakes testing. The practitioners in the classrooms are becoming consumed with meeting standards and thus are becoming increasingly unwilling to risk teaching thematically.

Conceptual Model

The model below demonstrates what I believe to be the impact of a high degree of implementation of the middle-school design on student academic success.

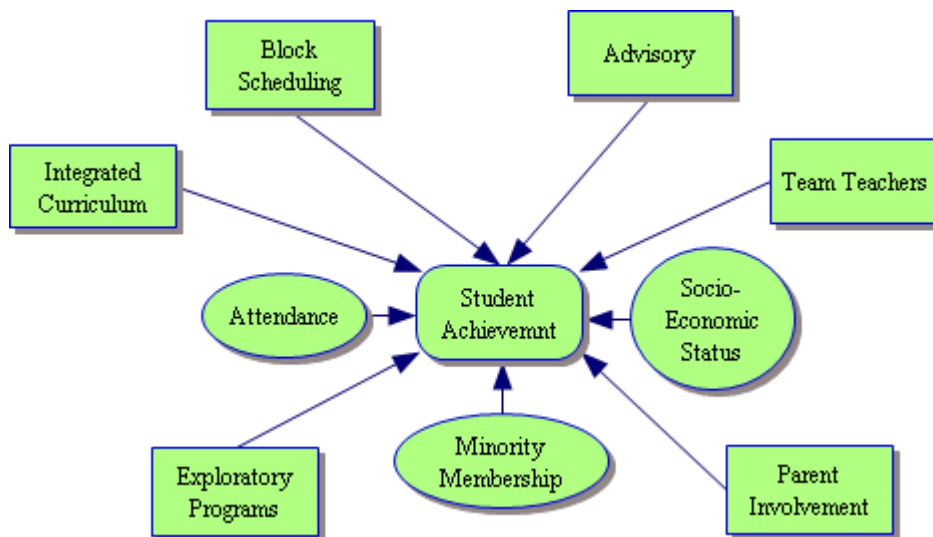


Figure 1. Conceptual model that includes the domains of the middle-school model and the controlling factors in this study.

Research Question

Does the degree of implementation of the components of the middle-school design relate to high-stakes assessment scores in Grade 8 reading and math?

Definitions of Terms

The following terms are used in this study:

Achievement—the acquisition of academic knowledge and skills.

Attendance - The cumulative average daily attendance divided by the average daily membership (ADM), converted to a percent (ADA).

Average Daily Attendance (ADA) - is the mean of the total student attendance for each day of class in the school year.

Average Daily Membership (ADM) – is the mean of the total enrollment for each day of class in the school year.

High Implementation—occurs when all components of the middle-school design are implemented and supported in a middle school. Schools with 15 or more points on the principals' survey were in this category.

Low implementation—occurs when all or some of the components of the middle school are implemented at low level or are not implemented at all. Schools with fewer than 15 points on the principals' survey.

Middle School: A middle school most commonly consists of Grades 6 through 8, but may be comprised of Grades 5 through 7, 6 through 7, 5 through 8, and 7 through 8. The middle school is typically structured around the developmental needs (social and academic) of young adolescents. Defining a middle-level school involves several perspectives including purpose, uniqueness, separation, organization, curriculum, and program (Clark & Clark, 1994): (a) purpose—to be developmentally responsive to the special needs of young adolescents; (b) uniqueness—a unique, autonomous unit, separate from the elementary school

that precedes it and the high school that follows it; (c) organization—the inclusion of the grade levels with the largest number of students who are beginning the process of becoming adolescents (any combination of Grades 5 through 9); (d) curriculum and instruction—content that connects with the everyday lives of students and instruction that actively involves them in the learning process; (e) program—programs that are developmentally appropriate and include, but are not limited to interdisciplinary teaming, teacher advisories, co-curricular activities and youth services (NMSA Research Summary, 1996a, p. 1).

Middle School Components: There is typically one or more of the following six components in place in a middle school: (a) advisor/advisee program—students are assigned to a teacher/advisor who will function as the students advocate, advisor, and point of contact for the parent. Ideally this grouping stays together for the 3 years of middle school; (b) integrated thematic curriculum—teams of teachers work together to develop units of study around a particular theme which includes objectives from each of the core academic areas; (c) teaming— this relates to both teachers and students. Teacher teams include a teacher from each of the core academic areas whose classrooms are close together, who have a common schedule, share a specific group of students. Students are to be heterogeneously grouped for instruction; (d) parent support and involvement—Parents are kept informed of activities and student progress and there is time for parent conferences during the contractual day. Teachers have strategies for keeping parents informed; (e) block planning for team teachers—teachers have two planning periods. One of these periods is for personal planning and the other is for team meetings, parent conferences and lesson and activity planning. It is also used to address student concerns and to meet with students if necessary; (f) exploratory program—students

have the opportunity to participate in nonacademic classes of particular interest to young adolescents during the school day. Some element of choice is present.

Minority Population—percent of each race/ethnicity as of the 9/30 report day.

Rigor - academic challenge; exactness without allowance or indulgence for less.

Socioeconomic Status (SES)-is based on the percent of students participating in the free or reduced lunch program.

Standards of Learning (SOLs): They are the minimum learning objectives for every public school child in Virginia in Grades K through 12. The standards of learning for Virginia Public Schools were adopted by the State Board of Education in June, 1995. The standards are organized into four core areas: mathematics, science, social studies, and reading (Commonwealth of Virginia, State Board of Education, 1995). The tests measure the mastery of the state standards and are criterion referenced in design.

Student Mobility Index – the number of students registering after September 30 added to the number of students who withdraw after September 30 divided by the average daily membership.

Development Overview

The following table outlines the key events and publications which resulted in the development of the middle-school concept and components as we identify them today.

Table 1

Historical Development of Middle Schools

1909	Columbus, Ohio Berkley, California	Social and emotional needs of adolescents needed to be addressed. Schools were established for Grades 7-9 and included both academic and vocational opportunities.
1918	Committee of Reorganization of Secondary Education	Stated that the needs of seventh and eighth grade students were not being met in the elementary setting.
1920	Koos and Briggs, <u><i>The Junior High School</i></u>	The junior high school model, organized on the high school design, was suited to the needs of adolescents.
1947	Gruhn and Douglas, <i>The Modern Junior High School</i>	Described 6 major functions to be included in a junior high school. These included: integration, exploration, guidance, differentiation, socialization and articulation. They remain today as the foundational framework defining the design of an effective middle school.
1950	Bay City, Michigan	Moved to a middle-school program with a developmental piece. There were to be other learning opportunities in addition to academics.
1963	Cornell University Junior High School Conference	William Alexander used the term “middle school” for the first time and outlined the need for a more responsive Setting for the “in-between ager”.
1968	Eichorn and Williams	Gave direction to a new wave of change by identifying specific components that should comprise the organizational design of a middle school.
1968	William Alexander	Developed survey to compile base-line data for the future study of the expansion of middle school movement.
1969	<i>The Emergent Middle School</i>	This book by William Alexander outlined the need for a school which was designed to meet the unique developmental needs of early adolescents.
1982, 1995, 2001, 2003	<i>This We Believe</i> , a series- National Middle School Association.	Contained the Manifesto of the Rationale, Beliefs, and Definition of the Middle School – and later the need for reform.
1988	Alexander and McEwin	Survey to determine the status and progress of the middle school movement 20 years after 1968 survey.

1989	<i>Turning Points: Preparing Youth for the 21st Century</i> . The Carnegie Foundation	Outlined the philosophy of the middle school design and ideology.
1993	Mc Ewin, Dickenson, Jenkins	Survey to determine current practices in middle schools 25 years after 1968 base-line survey.
1997	National Forum to Accelerate Middle Grade Reform	Studied the effectiveness and expansion of the middle-school design. Promoted programs to support the middle school reform movement.
1999	Schools to Watch	National Forum designed this program to identify and recognize high performing Middle Schools.
2000	<i>Turning Points 2000: Educating Adolescents in the 21st Century</i>	Supported the middle-school design as identified in the 1989 paper.
2006	<i>Breaking Ranks in the Middle</i> – National Association of Secondary School Principals	Outlined the cornerstones of successful middle-schools and the steps to achieve full implementation.

Summary of Chapter 1 and Overview of the Dissertation

The middle-school program, as it is promoted and implemented today, is purported to provide the optimal learning environment for adolescent student success. This leads to the implication that an increase in student achievement will result as they progress from Grade 6 through Grade 8. *The Research Agenda for the 21st Century* of the National Middle School Association (2001) is built around the current pillars of the middle-school design. No mention of the interaction of accountability, high-stakes testing, or their effect on the impetus for renewal of the middle-school commitment is made. This agenda is subtitled “Issues, Topics & Questions Guiding Inquiry into Middle Level Theory & Practice.” Middle schools have as their basic philosophy the goal of providing a climate for learning appropriate to the social, emotional, and psychological needs of emerging adolescents. The purpose is to improve and support the achievement of this group of students. Research is lacking with regard to this nexus.

In the state of Virginia, all students are required to take and pass the Standards of Learning tests. Those students in the eighth grade in the spring of 2004 and in subsequent years, who do not pass both the reading and math tests, will be required to participate in remediation at the high school level. Students with disabilities must pass the 8th Grade Reading and Math test in order to qualify for any diploma, including a modified standard diploma. This is believed to be a way to improve the student's chances of passing the required number of Standards of Learning End of Course tests as well as passing the corresponding courses, which are necessary to get a diploma at graduation. Therefore, success on the eighth-grade tests is critical for all students with regard to their high school program. The national movement toward standards and the high-stakes testing that resulted from it, provides a tool to assess the comparative success of students in highly implemented middle schools as compared to others who take the same testing instrument in different learning environments.

CHAPTER 2: REVIEW OF RELATED RESEARCH

There presently exists some concern and controversy over the middle-school design and components and its effectiveness with regard to increasing student academic success. There are some theorists who support a renewal of the commitment to the transition to and full implementation of the middle-school format. The National Forum to Accelerate Middle-Grades Reform is composed of foundations and organizations which believe in the appropriateness and value of the middle-school design (Christie, 2001). Others express the belief that current outcomes have not proven that the components as originally identified really work. According to Christie, “Many parents are concerned that middle schools have been so focused on the developmental needs of adolescents, that they have made academics secondary”(p. 649). The basic premise on which this dissertation is based is that in spite of the growing concern over the effectiveness of the middle-school design with regard to student learning, students in these schools are more successful than their peers in schools designed with a strong academic program without the unique needs of young adolescents being considered. High-stakes testing, which has serious implications not only for schools but also for the students and their long range goals, has put all schools under the microscope. Middle schools in particular have become the focus of much criticism and concern.

Middle-School Critics

In the arena of middle-school research, there are two opposing forces. The first is the collective voice of the advocates for the middle-school program and design. The opposing force believes that there is not enough rigor in the middle-school design as it is

currently implemented. Yecke (2005) is an outspoken critic of the middle-school structure. In her 2005 report for the Fordham Foundation, she traced not only the history of the modern middle-school development, but the false premises that existed along the way. She refers to the components and philosophy of middle school as “middle schoolism” and advocates a return to the K-8 model. She states in the conclusion of her report that “An educated public, the raising of standards, and pressure for results-based accountability are all helping to drive a stake into the heart of the middle-school concept” (Yecke, 2005, p.57). Chester E. Finn, president of the Washington-based Thomas B. Fordham Foundation, stated that “It’s about time the emptiness and folly of the middle-school movement [ends]” (as quoted in Manzo, 2000, p. 9). Finn believes that the middle school has been “a center of ‘soft-headed’ thinking that has resisted standards” (as cited in Manzo). “A recent report by the Brookings Institution refers to the “middle-grade slump” in scores as a cultural problem. “The importance of achievement declines in adolescence among American children more so than in other societies and more so today than in the past in our own society”, writes Tom Loveless (as quoted in Manzo, p. 7).

Branlow (2001) recognizes the recent research which supports the concerns of the middle-school critics that the focus is not on standards and achievement. This can be seen as accurate since none of the basic components of a middle school, as identified in the course of its historical development, address academic achievement in isolation. The entire purpose for moving to a middle-school design and structure is to provide the students a more effective learning environment and instruction which better matches their developmental needs.

Unstated but inherent is the understanding that these components will work together to improve and support student learning.

There are two very different curriculum factions at odds in this situation: the advocates believe in thematic integrated instructional design which enlivens learning and makes content more real for students as they see the connections between and among the different content areas as well as real life applications. Those opposed to the middle-school structure believe that standards-focused instruction, which maps and paces the curriculum, will more adequately teach the material on the test.

Supporters

Today, educational leaders are faced with the challenge of trying to interface society's demands for a rigorous instructional program, attaining externally imposed accountability standards, and at the same time, being responsive to the social, emotional, and developmental needs of the adolescent middle-school student. Several large and comprehensive studies have demonstrated that young adolescents who attend middle schools that use essential programs and practices like interdisciplinary teaming have higher achievement scores (Felner et al., 1997; Lee & Smith, 1993; Mertens, Flowers, & Mulhall, 1998). Felner et al. along with others conducted a study of the effects of the implementation of the Turning Points recommendations in Illinois. This was a compressed longitudinal study and spanning 6 years, from 1991 to 1997. It set out to evaluate successive cohorts at each stage of implementation. The methodology was conceptual in design to determine exactly how each recommendation was not only put in place but also the degree to which it was implemented. The results strongly support the Turning Points concepts as student growth was demonstrated

academically. The report also indicated growth in self-esteem and proved a reduction in fear and worry by students.

Russell (1997) conducted a study and used both surveys to determine the levels of implementation for middle-school concepts and student achievement scores from the district's student information system. Her conclusion demonstrates that

mathematics was the area that most frequently showed a positive, statistically significant relationship with the various middle-level program concepts. She goes on to conclude that all but the Advisor/Advisee concept had both a positive correlation with, and were included in the prediction equation for, mathematics achievement.

Language arts, on the other hand, had no positive relationship with any of the middle-level program. (Russell, p. 21)

Feldman and Ouimette (2004) presented a paper in which they reported that in each of the schools studied, student scores improved with the implementation of the Turning Points recommendations.

Merten and Flowers (2004) reported on the success of Turning Points in Boston Public School. They concluded by "this baseline analysis of nine Boston Turning Points schools has yielded very promising results....they have demonstrated positive effects from the implementation of the Turning Points model in several areas, including student achievement"(Merten & Flowers, p. 30). This study of the schools in Boston compared the self-study reports and student achievement data and compared the Turning Points schools to the matched, control group of schools. The prior year Merten and Flowers (2003) reported on the Michigan Middle Start initiative which began in 1994 with funding from the W.K.

Kellogg Foundation. This initiative “was designed to promote and improve middle-grades education for all Michigan’s young adolescents and sustain increased achievement and developmental responsiveness over time” (Merten & Flowers, p. 28). Again, self-study and Michigan Educational Assessment Program (MEAP) scores were used. The results of this study provide strong evidence to support Middle Start as an effective school reform design. Middle Start Comprehensive School Improvement (CSI) and Comprehensive School Reform Demonstration (CSRD) schools were able to demonstrate improved student achievement compared to similar groups of schools through an increase in the implementation of their interdisciplinary teaming structures combined with higher levels of team and classroom practices (Merten & Flowers, 2003).

Epstein and Salinas (1992) highlighted several issues that school leaders must come to terms with a common core curriculum vs. meeting students’ diverse needs, more time versus different use of time, basic skills versus advanced thinking skills, high standards versus no retentions, and the dilemma surrounding the issue of how quickly we need to respond to the need for renewal and how comprehensive that renewal needs to be. If it can be determined that students who move through highly implemented middle-school programs can score at the same or higher levels on high-stakes testing than their peers in other schools, then the renewal effort should be supported and expanded. If in fact the converse is true, then the middle-school design needs to be analyzed and modified to bring about this result.

Other Factors

The outcry for rigor at the middle-school level has as its focus the curriculum and instructional patterns currently believed to be in the best interest of the students at this

developmental stage. While delivery of instruction is a significant part of the achievement picture, there is an abundance of literature and research around the concept that there are other factors which impact the student's overall achievement in school. Before determining the relatedness of the middle-school design to the achievement level of the students on standardized tests, it is essential to determine what other factors are involved. Those that appear most often in the literature reviewed for this study are student attendance at school, low SES, being a member of a minority population and student mobility. In order to determine the true impact of a middle-school design, these other factors will have to be recognized for their relative effect on students and be controlled for when analyzing the data in this study.

Socioeconomic Status and Student Achievement

The socioeconomic status of a student and of the student body as a whole is a pervasive factor when looking at achievement scores. In their study of 174 eighth graders, Sherman and Hofmann (1978) determined that socioeconomic standing alone was not a factor to be considered in isolation. Makedon (1992) quoted Good and Brophy who wrote that: "decreases in [average school-wide] scores from year to year were significantly correlated with changes in socioeconomic composition of these schools' student bodies" (p. 587). White, Reynolds, Thomas, and Gitzlaff (1993) reanalyzed the data from two previous studies and came up with very different results. They acknowledged that many educators and social scientists believe there is a strong relationship between SES and student achievement. They demonstrated the difference in the relationship of SES and achievement when using individual data as opposed to aggregate data. This study was based on data collected from 22

districts and included test scores and demographic information for more than 30,000 students. When using the aggregate data SES accounts for 72% of the variance in achievement while the individual student data results in a difference of less than 20%. Either way there is an impact on learning for students coming from a low socioeconomic background and on the scores for the schools that they attend.

More prevalent is the research into the fact that students with a low SES have lower achievement on high-stakes assessments than those who come from more affluent families. “Risk factors associated with poverty – unmet basic needs, high family stress levels, and limited exposure to activities that advance cognitive development and build literacy skills – contribute to poor student performance” (ED Source Online, 2004, p. 1). The No Child Left Behind legislation identifies students of low SES as a focus subgroup and thereby recognizes that these students need additional support to improve their academic success.

Minority Students and Achievement

No Child Left Behind legislation (NCLB; 2001) has brought clearly into focus the need to identify the learning environment most suited to closing the achievement gap between minority students and the student population of non-minority students. In the State Summary of Virginia, the Education Reward Trust states in its highlights that a gap still exists between Latino and African American eighth graders in reading, writing, and math when compared to their white classmates (Education Trust, 2001). Middle grades are the key to closing this gap and the middle-school model which has as a focus adolescent social-emotional needs, as well as academic excellence, has the potential to make this difference. Research on the effect of a

large minority population on the overall achievement of the school is sparse in comparison to the literature attesting to low scores for minority students individually.

Attendance and Student Achievement

Logic dictates that in order for a student to benefit from classroom instruction he or she needs to be present. Lamdin (1996) concluded that “data from Baltimore public elementary schools indicate that student attendance is positively and significantly related to standardized achievement test performance” (p. 155). The Department of Accountability of the New Orleans Public Schools, Louisiana did an exploratory data analysis on the relationship between achievement and absenteeism. The report *Evidence of Student Attendance as an Independent Variable in Education Production Functions* which resulted stated that “The disaggregation of the 1993 district wide test results clearly demonstrated the extent and consistency to which absenteeism, especially excessive absenteeism, is associated with poor achievement in the district” (p. 17).

Attendance is viewed as a serious factor in the achievement of a student. The attendance ratio of a school has an impact on the overall test data of that school and needs to be accounted for when assessing schools for effectiveness. Virginia includes this statistic on the report card it compiles annually for each school. The federal NCLB (2001) law has attendance as a factor for closing the gap. Schools have to be proactive in raising their average daily attendance so as to meet this legislated standard of 95% ADA.

Mobility and Student Achievement

The 2000 U.S. Census data show that 15% to 18% of school- age children move each year. These moves are generated by family situations. The passage of the No Child Left

Behind legislation may lead to an increase in student mobility as parents move from a school in order to access better learning opportunities for their children (Rumberg, p.1,2002).

This relationship between mobility and achievement is the subject of many studies. The findings are generally consistent – there is a negative relationship between mobility and the student’s ability to achieve. While it is recognized that student mobility is not a cause of low student achievement, research supports the fact that it is a contributing factor. Dolores Evans (1996) concluded that “mobility lowers student achievement, particularly when the students are from low-income, less-educated families” (p.2). It is also recognized that a high student mobility rate can be devastating to the schools’ reform efforts and those of the school division. (Education Week, 1994). This claim is not, however, supported by others. Adduci, (1990) and Paredes (1993) revealed in their respective studies that mobility alone may not cause lower academic achievement. These researchers could not clearly attribute lower academic scores to mobility, since mobility is closely related to low income status. High mobility is associated with, but not a direct cause of, lower achievement. (Lash and Kirkpatrick, 1990; Kerbow,1996).

This lower achievement score impacts not only these students, but their classmates and the school performance on standardized tests. Mobility rates should be factored into a school’s performance scores, particularly in the current climate of high stakes testing.

Summary of Chapter 2

Middle schools are under fire as being ineffective with regard to student achievement. Proponents of the middle-school design argue this point and call for a renewal of the transition to middle schools. Critics see this as an effort to continue with a weak school design which should be obliterated. This latter group does not recognize any gain in student achievement as a result of implementation of the middle-school philosophy, design, or components.

Many factors contribute to the success of students. Many are beyond the realm of the school's influence. The design of the school's program, however, is one aspect of the students' educational experience over which the school does have control. It is the learning environment and its appropriateness for the developmental level of the students that will support the degree of success of the students on high-stakes tests. Critics of the middle-school design, Yecke, Finn, and others have not presented statistical data to support their case. They rely on the report of parents for their attack, and not the first hand assessments of the educators involved in the direct instruction of the adolescents. Lounsbury, Jackson, Davis, and others who stand for a renewal of the middle-school reform and its expansion, are educators who have been involved with middle schools and the students who are educated there over an extended period of time.

Many factors are purported to impact the degree of learning for students. Some factors such as attendance are critical to learning. However, other factors are difficult to isolate as they impact learning in an integrated manner. SES interacts with other factors in such a way that it is difficult to determine their degree of impact on student learning at the middle grades level. It is these conflicting forces that generate the need for a concrete statistical study to determine the effect that attending a middle school, or a school which implements the middle-school components, has on student achievement.

CHAPTER 3: METHODOLOGY

Introduction

Does the degree of implementation of the components of the middle-school design relate to high-stakes assessment scores in Grade 8 reading and math? The purpose of this research was to determine whether eighth-grade students who attend a school with a fully implemented middle-school design have an increased opportunity to maximize their score on state assessments. Eighth-grade reading and math scores for the Virginia Standards of Learning were utilized for this comparison. Other variables which impact student learning, such as attendance, socioeconomic status, student mobility, and the presence of a large proportion of students with varied ethnic and racial backgrounds were taken into account. For schools struggling to maintain state accreditation and to make Annual Yearly Progress (AYP) mandated by the No Child Left Behind (NCLB) legislation (2001), this is a vital question. The middle-school program is a costly endeavor, and it is essential that the students are receiving the best possible opportunities and are being prepared for the assessments that confront them.

This study sets out to measure the effect of the level of implementation of the middle-school program on student achievement on high-stakes assessments. These statistics regarding the middle-school components were determined by means of a survey of principals presently working in Virginia schools containing Grade 8.

Population

Schools in Virginia where the Standards of Learning tests in reading and math are administered were the target population. Standards of Learning reading and math scores for eighth-grade students in all Virginia schools for Years 2002, 2003, and 2004 were obtained

from the Virginia State Department of Education Web site. Only those schools which administered these tests all 3 years were included. Table 2 below reports the breakdown of grade level configurations which were included in this study.

Table 2

Grade Level Configurations in Study

Grade configuration	Number of schools In study	% of Survey responses in study
K - 12	1	1
4 - 8	1	1
5 - 8	4	4
6 - 8	83	77
7 - 8	8	8
8 - 12	7	6
6 - 12	2	2
8 - 9	1	1
7 - 12	1	1
Total	108	100

Note. Percents rounded to the nearest whole.

These schools represented 84 of the 133 (or 63%) of the school divisions in the state of Virginia. School divisions in Virginia are divided into eight geographical regions and schools from each of the eight regions responded and were included in this study. Divisions with many middle schools, those with only one, or with a combined junior or senior high school were also represented. Schools containing grade 8 totaled 365.

The survey was initially sent electronically to 131 principals. However, many were returned as firewalls had identified the survey as spam. Of the 43 electronic survey responses, only 18 were included in this study. A paper survey was then sent out to the 322 schools

containing an eighth grade. One hundred twenty-six were returned. Three different mailings, as well as two reminders, were sent to principals. The total number of responses, electronic and paper, received represented a 52% response rate. Some surveys were undeliverable, while others were not identified as to the school responding. The final pool of 108 surveys contained a combination of 18 electronic responses as well as 90 paper responses. These were schools that had administered both tests all 3 years, contained Grade 8, and had returned a survey which was complete and identifiable.

Instrumentation

A survey was developed in order to determine the level of implementation of the middle-school components. Domains were identified from the research literature, and questions were generated for each of these domains. Standards of Learning scores were downloaded for the Virginia Department of Education Web site for the years analyzed in this research. The survey contained 30 questions, five for each of the six domains. Data regarding the number of students who were eligible for free or reduced lunch, ethnicity and racial percentages, student mobility, and student attendance, were obtained from the demographic section of the survey and the Virginia Department of Education reports.

Construction of the Instrument

As part of the survey development, content validity reviews were performed. These reviews were conducted during the class time of the Orientation to Residence (OTR) seminar during the summer of 2002 and subsequently during a meeting of middle-school principals in Prince William County. The 30 members of this class and the 13 principals or their representatives acted as the jury to evaluate each survey question for validity and clarity. As

no middle-school educators were present in the OTR class, a description was provided of each of the six domains of the survey. The feedback necessitated that three successive reviews be conducted with that group. A subsequent review done in Prince William County was done only one time. The scores were combined to determine the most valid questions for inclusion in the survey. The goal was to achieve at least a validity score of 80% for each survey item. A summary table of the item validation by domain appears in Table 3.

The number of items for each domain varied. The target number of items to be validated for each domain was five. The final survey instrument included five items for each of the six domains. These five items were selected from the validated items by the researcher.

Table 3

Item Validation by Domain Area

Domain	Number of items used in validation	Percent validated after four rounds	Number validated
Advisor/advisee program	7	100	7
Integrated thematic curriculum	6	100	6
Interdisciplinary teacher teams	9	55.5	5
Parent support and involvement	7	100	7
Block planning for team teachers	7	100	7
Exploratory program	6	100	6

Reliability Checks

Cronbach's Alpha was used to determine the reliability of the survey. A reliability coefficient of 1.0 would indicate perfect reliability on the survey items and 0 would indicate no reliability. A scale was constructed for each of the predictor variables. Cronbach's Alpha was calculated for each survey domain. Table 4 below summarizes this data.

Table 4

Alpha Reliability Coefficients for the Predictor Variables

Domain	Number of items	<i>M</i>	<i>SD</i>	Alpha
Advisor/advisee program	7	1.000	.0000	1.0
Integrated thematic curriculum	6	1.000	.0000	1.0
Teacher/student teams	9	50.55	26.83	.69
Parent support and involvement	7	1.000	.0000	1.0
Block planning for team teachers	7	1.000	.0000	1.0
Exploratory program	6	1.000	.0000	1.0

Clarity

The clarity of each question was calculated by use of means and Standard Deviations. Each survey item was scored for its clarity during the validation process. Items were given a

numerical score from 1 to 3 with three being the score indicating the most clarity. The clarity scores for each item were used to determine the mean and standard deviation for that item. These scores along with the validity score determined whether or not a particular item was included in the survey.

Survey Scoring

The survey was designed with yes or no response options. The yes response carried a numerical equivalent of one while a negative response was considered zero. A total of the item scores were calculated separately for each of the six domains and for a survey total score.

Data Collection Procedures

The test scores used for this study were available as a public record at the Virginia Department of Education Web site. An Excel spreadsheet displayed the unadjusted mean Standards of Learning scores by year for each school containing Grade 8 and was downloaded into an SPSS spreadsheet. The scores for each school for each of 3 years were averaged, and the mean was imported to the spreadsheet for both math and reading. These scores were used as the comparison score for this study. Survey data and statistics were imported into the same SPSS file and the completed file was analyzed for this study.

The level of implementation of the components of the middle-school program was determined as a result of a survey which was sent to each of the principals in Virginia whose schools house Grade 8 and whose schools had scores for all 3 years were included in this study. All 133 school divisions in Virginia were included. A total of 365 schools received the survey; 169 principals responded. This is a return rate of 52%. This provided a sampling error

of + or - 3% and a confidence level of 95%. This number was derived from the formula below (Dillman,2000, p. 207).

$$Ns = \frac{(Np)(p)(1-p)}{(Np-1)(B/C)^2 + (p)(1-p)}$$

Dillman's (2000) recommendations for both the design of an effective survey and methods to improve the response rate were employed. An introductory letter stating the need for this research and the reason for conducting it at this time was sent along with a postcard to be returned with the school principal's email address in order to use a web based survey provider. A reminder postcard was sent 1 week later. Electronic surveys were sent in groups of 25 as email addresses were received. A majority were not delivered, as they were blocked as spam. A decision was made to use paper surveys. A letter explaining this change of plan, along with a copy of the survey and a stamped return envelope was sent. A postcard followed a week later. A second letter with another copy of the survey was sent 3 weeks later. A second postcard reminder followed, and finally a third letter and survey were sent. A return rate of 50% was expected to support the validity of the study.

Research Questions

Does the degree of implementation of the components of the middle-school design relate to high-stakes assessment scores in Grade 8 reading and math?

Analytical Procedures

The Standards of Learning scores were the criteria used to determine the effectiveness of a particular school. Only schools with test scores for each of the 3 years (2002, 2003, 2004) in both reading and math were included in this study. The data was used to determine the effectiveness of each of the schools containing Grade 8 in Virginia—both middle schools and schools of other grade configurations. The predictors of attendance, SES, minority membership, were controlled to determine their impact on student achievement. Student mobility was not included in the equation as response data was unreliable or not included in the demographic responses. Multiple regressions were performed for both the math and the reading scores. This analysis was run to determine if the independent variable, the level of implementation of the middle school design which is represented by the survey total, and the covariates of socioeconomic status (SES), minority membership, and student attendance rates as well as the predictor variables, individual components of the middle school design, were significant in predicting the dependent variable of student achievement on the reading and math Standards of Learning in grade 8. The following models were tested:

1. SOL Reading = Survey Total + (SES) + (minority membership) + (attendance) + Advisory Programs + Teacher Teams + Exploratory Opportunities + Block Scheduling for Teachers + Parent Involvement + Integrated Curriculum + error

2. SOL Math = Survey Total + (SES) + (minority membership) + (attendance) + Advisory Programs + Teacher Teams + Exploratory Opportunities + Block Scheduling For Teachers + Parent Involvement + Integrated Curriculum + error

Chapter Summary

This chapter presents the research design used for this study. It defines the research population and the data gathering procedures. The research question to be investigated is stated and the methods of analysis employed are outlined.

Table 5

Variables and the collection and analysis outline for research project

	Dependent variable	Independent variable	Covariate
Data	State department of	Principal's survey	Virginia
Collection	education Web site		Web site
Analysis	Scores averaged for math and reading	Calculate survey results	Multiple Regression

CHAPTER 4: RESULTS

Introduction

The achievement of eighth-grade students on high-stakes assessments is of great concern to the teachers and administrators responsible for this grade level. This study utilized the survey results and the published scores for the Virginia Standards of Learning tests for eighth graders in both reading and math. The survey results quantified the level to which school organizations implemented programs and practices outlined by the middle-school advocates in the 1980s. These included advisor/advisee programs, teacher teams, exploratory opportunities, block scheduling for teachers, parent involvement, and integrated curriculum. Only schools which administered the eighth-grade assessments in 2002, 2003, and 2004 were included in the study. Grade configuration was not an exclusionary factor.

Recent studies were conducted by Jadallah (2005) with regard to the status and success of the reform movement, and another study by Goodman in 2006 to measure the Turning Points recommendations and their implementation. This research set out to assess the relationship of organizational components and preferred practices of middle schools and their impact on students' success on the state assessments mandated by No Child Left Behind legislation.

Research Question

Does the degree of implementation of the components of the middle-school design relate to high-stakes assessment scores in Grade 8 reading and math?

Analytical Procedures

An Excel spreadsheet and SPSS were used to collate and analyze the data. Descriptive statistics were calculated as well as correlation coefficients among the three control variables, the six predictor variables, and the two dependent variables. Because of the large number of correlations, the significance was corrected to avoid a Type I error. The Bonferroni approach was used and .05 was divided by the number of independent variables (9); therefore, the p value would have to be less than the corrected value of .005 to be considered significant (SPSS, p. 238). The chart below includes the means and standard deviations for both the reading and math data, as well as the dependent variables and both control and predictor variables.

These statistics give some basic information regarding the data gathered. There is a greater difference in math scores than in reading, with math having a standard deviation = 12.60 while reading has a standard deviation = 10.29. Equally of interest is the range between the highest and lowest scores for each of the predictor variables. The advisor/advisee program, teacher teams, block schedules for teachers, and integrated curriculum had the greatest possible difference from minimum to maximum (0-5). Parent involvement and exploratory opportunities had a slightly smaller range from 1 to 5. These variations will be discussed in conjunction with the correlation statistics as well as the coefficient significance.

Table 6

English, Math, Control Variables and Survey Components Descriptive Statistics

	Minimum	Maximum	<i>M</i>	<i>SD</i>
Reading average	40.73	91.54	70.83	10.29
Math average	35.56	93.64	70.69	12.60
% SES	.00	71.00	31.13	16.73
% Minority	.00	100.00	34.32	26.75
ADA	56.00	99.00	95.19	3.72
Advisory program	0	5	2.58	1.30
Teacher teams	0	5	2.90	.97
Exploratory	1	5	4.63	.70
Opportunities block schedules for teachers	0	5	3.71	1.40
Parent involvement	1	5	4.29	.85
Integrated curriculum	0	5	3.48	1.12

Note. Advisory Program Teacher Teams, Exploratory Opportunities, Block Schedules for teacher, Parent Involvement, and Integrated Curriculum have a range of 0 to 5.

Pearson correlations were calculated to demonstrate relationships which exist, but are not causal in nature. The mean for the Reading and Math scores for 2002, 2003, and 2004 was calculated to obtain a single score for each of the two dependent variables. Since the

independent variables fall into two distinct categories, they were grouped as follows: Group 1, consisted of the control variables of SES, % of minority students, and the average daily attendance. Group 2 contained the predictors which consisted of the survey components: advisor/advisee program, teacher teams, exploratory opportunities, block schedules for teachers, parent involvement, and integrated curriculum. Table 7 presents the correlation results of both the Groups 1 and 2 variables with the reading and math scores.

Table 7

Pearson Correlations

	Reading Average	Math Average	% SES	% Minority	ADA	SC1	SC2	SC3	SC 4	SC5
Reading Average										
math Average	.719**									
% SES	-.479**	-.434**								
% minority	-.266**	-.089	.379**							
ADA	-.036	-.019	.104	.040						
Advisory program	.038	.070	-.132	-.152	.119					
Teacher teams	-.062	-.021	.016	.116	.310	.038				
Exploratory opportunities	-.039	-.043	-.053	-.031	.347	.076	.173			
Block Schedules for teachers	.042	.120	.098	.249**	.270**	.021	.152	.171		
Parent Involvement	.012	.058	-.040	.003	.357	.225*	.214*	.235*	.227	
Integrated Curriculum	-.217*	-.116	.050	.276**	.200	.239	.416**	.135	.084	.370

Correlation is significant at the 0.01 level (2-tailed). * Correlation is significant at the 0.05 level (2-tailed). **

Note: SC 1 = Advisory programs, SC 2 = Teacher teams, SC 3= Exploratory opportunities, SC 4 = Block schedules for teachers, SC 5= Parent involvement, and SC 6= Integrated curriculum.

Several correlations were significant. The SES of the families in a school community correlated negatively with both reading ($p = -.479$), and math ($p = -.434$). This ties directly to

the impact that the percent of minority students has on reading, ($p = -.266$) as opposed to a ($p = -.089$) for math.

Multiple regression analyses were also conducted to determine the overall relationship between the Virginia Standards of Learning scores in reading and math and all control variables, as well as each of the individual components of the survey. The mean score for the 3 years was calculated for both reading and math and was used as the dependent variable. The independent variables can be thought of as being two distinct groups. The first group contained percent of low SES students, minority students, and average daily attendance. The second group consisted of the six components of the survey itself: advisor/advisee programs, teacher teams, teacher block scheduling, parent involvement, exploratory opportunities, and integrated curriculum, each believed by middle-school advocates to have some relationship to the academic success of students. The control variables of SES, percent of minority students, and average daily attendance, as well as these predictor variables were analyzed for their effect on the dependent variables.

The one control variable which had a statistically significant relationship to both reading and math was the SES of the family. SES was positively related to reading ($r = .537$) but a less significant relationship with math ($r = .485$). Attendance had the least relationship on test scores, reading ($r = .056$) and math, ($r = .005$).

There is a greater effect on reading scores in relation to the level of implementation of the middle-school components than math. Block scheduling for teachers had a positive relationship to reading ($r = .055$), teacher teams ($r = .049$), and exploratory opportunities ($r = .048$), reading is significantly more associated to each of the variables than math.

The other survey components showed a similar varied relationship. While not statistically significant, they do play some part in the overall relationship of the program to student achievement.

Table 8

Effect Size and with Relation to Reading and Math Scores

Middle-school component	Reading	Math
Socioeconomic status	.537	.485
% minority	.257	.096
Average daily attendance	.056	.005
Advisor/advisee program	.060	.088
Teacher teams	.058	.019
Exploratory opportunities	.057	.058
Block scheduling for teachers	.045	.121
Parent involvement	.030	.071
Integrated curriculum	.142	.120

Summary

This chapter reported the descriptive and analytical data of the information gathered. Pearson correlations and multiple regressions showed significant correlations between two control variables: SES and the percent of minority students at a school. It did not, however, clearly support either the position of the critics of middle school, or its supporters. Based on

the data compiled and analyzed, the middle-school design components were not a significant factor in student academic achievement.

CHAPTER 5: CONCLUSIONS AND DISCUSSION

Summary

Does the degree of implementation of the components of the middle school design relate to high-stakes assessment scores in Grade 8 Reading and Math? The results of the analyses conducted for this study provide some interesting perspectives on the current reality of the effectiveness of the middle-school program. The data analysis which was part of this research demonstrated no significant relationship between the implementation level of the middle-school components and the reading and math scores on the Virginia state assessment for eighth-grade students. The one factor that did impact the students' academic achievement was the socioeconomic status of the student population of the school. Reading scores were affected more than math scores. While there is no concrete support for the expansion of the program, neither is there support for the assertion that it lacks rigor and keeps students from achieving academically as the critics declare.

Discussion of Results

The results of this study provide some interesting perspectives on the current reality of the middle-school program. The scores for reading and math at the eighth-grade level on the Virginia Standards of Learning were not significantly impacted by the type of school a student attended. The level of implementation of the middle-school components was not shown to be a factor in the school scores for reading and math. Whether or not the survey, as it was designed, actually elicited the responses needed to determine this level is unclear. Should the 7 years' scores be used in lieu of the 3 years is another aspect to be considered?

Would the rate of improvement be a more telling statistic than the test scores? A study combining statistical data derived from survey responses and school visits to interview the principal and staff has the potential to more accurately determine the program implementation level at a particular school.

The data analysis which was part of this research did not support the position held by Yecke (2005), Finn and others that assert the academic ineffectiveness of middle schools. These critics claim that there is no valid reason for the middle-school design and philosophy to be perpetuated. However, they do not support their criticism with empirical data. This study presented no significant data to support their position which holds that high-stakes testing will be the death of middle school and as Ruth Mitchell, an Education Trust researcher states, “...we should abandon the whole middle-school concept” (as quoted in Brockett, 1999, p.4). Scores for schools with various different designs were not that disparate. Neither do these findings support the claims of lack of rigor nor the “soft-headed” thinking that Finn (2000) refers to in the Fordham Foundation Report. Rigor is obviously present as the middle school eighth grader scores at a level comparable to his peers at other schools. The resurgence of the “elemiddle” or K through 8 schools, which is related to the criticism of the middle schools, is based not on data but on the verbalized complaints of parents and researchers. This study included the scores for all Grade 8 students regardless of the grade configuration or type of school the students attended. This included K through 8 schools. The middle schools did not generate any different results than any other grade configuration.

While the critics did not get validation from the results of this research, neither did those who are staunch supporters of the middle-school concept. Several conclusions can be

drawn with relation to prior studies which demonstrate a positive relationship between student achievement and the middle-school model. Feldman and Ouimette (2004) reported that students were increasingly more successful academically when the Turning Points model is implemented. This report is based on a study of change for particular schools and not the comparison to other schools not part of the change program. Russell (1997) asserted that math is more affected by the middle-school implementation than language arts. In the present study, reading scores showed more of a relationship to the middle-school implementation than math. Again, the two studies are different in that the 1997 report is analyzing change for a particular school while this current research is not measuring rate of change in scores, but the comparative difference in scores between middle schools and all other schools which include Grade 8.

The socioeconomic status of the families which comprise the school community has a significant impact on the reading level of the students. Reading is the foundation for all other academic achievement. It is not uncommon for students from low SES families to come to school with little or no reading readiness and no prior exposure to books. The environment in which they live does not support a student's pre-learning needs. Reading readiness is lacking and students are often unable to close the gap. Math was not demonstrated to be impacted to the same degree. The increased use of math manipulatives, the visual aspect of one to one correspondence and other mathematical concepts can be the distinguishing factor in this difference. This finding aligns with the fact that low performing schools are more prevalent in areas of poverty than elsewhere.

Tied closely with low socioeconomic populations are a high proportion of minority families within a school population. It was not possible to identify the population of students who were represented in both of these statistics—low SES and minority percentage. This overlap can impact the data and therefore the statistics derived. Of these two factors, the SES of a family has a greater impact on readiness to learn. Family support is often lacking for these students and an environment where reading is an everyday occurrence for adult family members is not the case. Being a member of a minority category does not automatically imply poor academic performance. However, when allied with a low SES, this often the situation.

While the prevalent belief is that attendance is directly associated with student achievement, the data in this research did not indicate a significant link. However, when reviewing the raw data, attendance was not problematic during this 3-year period. Reported attendance rates had a ranged from 92% ADA to 99% average daily attendance. Those schools included in this study did not have a significant problem with student attendance.

Implications for Further Research

State-mandated assessments now provide researchers with large populations which can be studied using a common assessment as a measure of academic achievement. States have the option under No Child Left Behind to determine the manner in which schools will be measured with regard to student achievement. While the same testing instrument is not used in all states, studies are possible within states and this presents a large population for analysis than was available in the past. A number of states have been given permission to use a growth model to meet the required targets of the No Child Left Behind legislation. It would be significant to do a comparative study in this environment using student growth as the

indicator of rigor and academic excellence in order to document the effectiveness of the middle school components.

This study presents a range of questions which can be addressed in future research. A longitudinal study of the rate of improvement not only for school scores but also for the sub-groups identified in the No Child Left Behind legislation can be accomplished within the context similar to this research study – middle schools and non-middle schools. A qualitative study of students who have attended both traditional schools, based around curriculum areas, and middle schools which have in place each of the recommended components would provide insight from a different perspective. This current study also provides areas for expansion. A research study which combines surveys and interviews would conclude with a more precise understanding of how the school is organized. Another factor with regard to adolescent success on high-stakes tests is the educational background of the staff with regard to early adolescents and their unique learning needs. An area of particular interest is the difference in achievement at high school graduation for those students who attended a true middle school, as compared with those classmates who attended a traditional K-8 school. Did the philosophy behind the middle-school design provide students with increased self-confidence and motivation which led to more productive high school participation? Middle school and all aspects of teaching adolescents, abound with unanswered questions.

Conclusions

There are several possible reasons for the results to be inconclusive. Earlier unpublished analysis of the test scores for the initial 3 years of the state assessments (1998-2000) indicated a higher level of achievement and more rapid improvement in scores for

middle schools as contrasted with all other schools containing Grade 8. Given that experience is a strong factor in school improvement, schools which were not successful on state mandated assessments began to subscribe to the use of test prep books, online practice programs, and the use of released test items for practice results in an increase in school achievement scores. That being said, where does the middle school stand with regard to student achievement? The most obvious response is that the components of the middle school create the most productive learning environment for this age group. In this study grade configuration did not seem to be a factor of significance. Nor was the presence of the middle school design components of significance. Reading and math comprise the foundation of all learning. Are they then the best measure to use when making comparisons? The middle-school components may have no impact of significance on these areas, however, when measuring other learning objectives: problem solving, life skills, and related arts areas and the role they play in a student's future studies and career choices, the outcomes of such a study may be very different.

Renewal is essential for a school addressing the needs of early adolescents in the current climate of accountability. In the evolution of the middle school, we need to rethink the organizational components included in numerous studies since 1968, as being indicators, while the philosophical and theoretical aspects of the *Turning Points* (2001), and the cornerstones advocated in *Breaking Ranks in the Middle* (2006) become the foundation and infrastructure for the renewal. Each of these aspects of an effective middle school, design components, theory and philosophical base, and key cornerstone systems is essential for the success of the early adolescent.

High-stakes testing presents a particular challenge for schools with high percentages of poverty and minority students. The nurturing aspects of the middle school, the specific focus on adolescent needs, and the unique learning potential of these students, require that schools focus on strategies and organizations that support and encourage high levels of achievement. This environment requires that teachers be dedicated to the success of the students and embrace the students as partners in learning. Advisory programs, teacher teams, integrated learning objectives, and block scheduling provide a setting in which students can be understood as individuals. Knowing students individually in an advisory setting is the first step to bringing them into the learning arena. Attendance is not an issue when students feel welcome in the classroom. Parent involvement and support is an important component in any educational environment, but at this critical juncture in a child's life, it is more important than at any other time with the exception of early childhood. Teachers who are able to work together for the benefit of a student have the opportunity to be partners with the parents. The middle-school components allow for a truly nurturing environment.

The data analyzed in this study does not support the critics such as Yecke and Finn, who assert that rigor is absent in a middle school. With no significant statistical impact on either reading or math, the conclusion has to be drawn that students will succeed on the Virginia Standards of Learning test no matter the type of school they attend. Critics and advocates both need to recognize that good teaching is the key to academic rigor and success. The framework of the school which a student attends can make a significant difference to individual students while not being statistically significant when the population of a grade level is treated as a whole.

Implications/Recommendations

Middle schools are not indicated to make a significant difference in the reading and math scores on the Virginia Standards of Learning tests. Conversely, they did not have a negative impact. If by attending a fully implemented middle school, a student has the advantage of a compatible learning environment, the opportunity to observe how content areas are interrelated, and to be known by his teachers as an individual, he is in the best possible setting for his present learning and for developing life skills for the future. When the adolescent has the opportunity to work in a small learning community, a team, as opposed to a larger more impersonal school setting, then the value of a middle-school experience is priceless.

The issue of the impact of Socio-economic status (SES) is one which needs to be vigorously addressed. When students enter school already behind their classmates from more affluent homes, the potential for poor academic performance is high. This is one area that definitely needs to be vigorously addressed. Programs need to be developed and implemented so that all students are presented with the same opportunity for success from the beginning of their school experience. Research into the programs and teaching strategies in place in a school with relatively high percentages of low socioeconomic students and high test scores is strongly recommended.

More research is needed if a clear understanding of the relationship of middle school and student success is to be clearly understood. While this research attempted to support the role of the middle-school in student achievement, it was not a success. A broader study, combining both quantitative data and a qualitative component is needed. A survey which

would include students, teachers, and administrators would give a more specific indicator of the level of implementation of the components of the middle-school design. Site visits and interviews would provide insights into what the survey actually represents. Many of the studies directed at the status and success of the reform movement are designed along these lines. The need is not to validate the growth a school experiences when they implement the reform measures, but rather how do they match up to those schools who do not participate in the reform movement.

Middle school, as we know it, has the structure and potential to address student issues while supporting the students' interactions and success with the learning expectations. We need to embrace John Lounsbury's admonition to "Keep the Charge" (2000) and move forward to accept the necessity of a school design and philosophy that supports the educational, intellectual, physical and social-emotional developmental needs of early adolescents.

REFERENCES

- Alexander, William M. (1968) *A Survey of Organizational Patterns of Reorganized Middle Schools*. Gainesville, Fla.: University of Florida.
- Alexander, W.M. & McEwin, C.K. (1989) *Earmarks of Schools in the Middle: A Research Report*. (ERIC Document Reproduction Service No. ED 312 312)
- Alexander, W.M. & McEwin, Schools in the Middle: Status and Progress. Columbus, OH: National Middle School Association.
- Branlow, R. (2001) The misdirection of middle school reform? Is a child-centered approach incompatible with achievement in math and science. *Clearing House*, 75(1), 69-73.
- Brockett, D. (1999). Reexamining middle school reform. *Educational Digest*. 64, 30-34.
- Carnegie Foundation. (1989). *Turning points: Preparing American youth for the 21st century*. (1989). New York: Author.
- Carnegie Foundation. (2000). *Turning points: Educating adolescents in the 21st century*. (2000). New York: Author
- Christie, K. (2001, May). The middle level: More than treading water. *Phi Delta Kappan*, 649.
- Clark, S., & Clark, D. (1994). *Restructuring the middle level school: Implications for school leaders*. Albany, NY: State University of New York Press.
- David, R. (Ed.). (1998). *Moving forward from the past: Early writings and current reflections of middle school founders*. Columbus, OH: National Middle School Association.

- Dillman, D. A., (2000). *Mail and Internet surveys: The tailored design method*. New York: John Wiley.
- ED Source Online. (2003). *Narrowing the achievement gap: A review of research, policies, and issues*. Retrieved October 1, 2007, from <http://www.edsource.org/pub.abs.achgap.cfm>
- Epstein, H. T., & Toepfer, C.F. (1978). A neuroscience basis for reorganizing middle grades education. *Educational Leadership*, 35, 657-660.
- Erb, T. (Ed.). (2001). *This we believe ...and now we must act*. Columbus, OH: National Middle School Association.
- Feldman, J., & Ouimette, M. (2004). *Examining the turning points comprehensive middle school reform model: The role of local context and innovation*. Paper presented at the annual meeting of the American Educational Research Association, San Diego, CA.
- Felner, R. D., Jackson, A.W., Kasak, D., Mulhall, P., Brand, S., & Flowers, N. (1997). The impact of school reform for the middle years: Longitudinal study of a network engaged in turning points-based comprehensive school transformation. *Phi Delta Kappa*, 78, 528-550.
- Goodman, M. (2006). *Middle school programs and practices and student achievement*. Columbia: University of Missouri.
- Hough, D. L. (1995). The elemiddle school: A model for middle grades reform. *The Principal*, 6-9.

- Jackson, A., & Davis, G.A., (2000). *Turning points 2000: Educating adolescents in the 21st century*. New York: Teachers College Press.
- Jadallah, N. (2005). *The relationship between middle school reform and student outcomes*. Provo: University of Utah
- Lamdin, D. J. (1996). Evidence of student attendance as an independent variable in education production functions. *Journal of Educational Research*. 89, 155-162.
- Lounsbury, J. H. (2000). The middle school movement: "A Charge to Keep." *Clearing House*. 73, 193.
- Makedon, A., (1992). *Is Alice's world too middle class? Recommendations for effective schools research*. Washington, DC: Department of Education Office of Research and Improvement. (ERIC Document Reproduction Service No. ED 846612)
- Merten, S. B., & Flowers, N. (2003). *Middle start CSRD: Show me the evidence of effectiveness*. Paper presented at the American Educational Research Association's Annual Meeting. Chicago.
- Merten, S. B., & Flowers, N. (2004). *Assessing the success of turning points in Boston public schools*. Paper presented at the American Educational Research Association's Annual Meeting. San Diego, CA.
- National Middle School Association. (1997) *A 21st Century Research Agenda; Issues, Topics & Questions Guiding Inquiry Into Middle Level Theory & Practice*. Columbus, OH: Author
- National Middle School Association. (2001). *This we believe and now we must act-renewal of the impetus for change*. (2001). Columbus, OH: Author

NMSA Research Summary. (1996a). Exemplary middle schools. Retrieved October 2, 2007, from <http://ceep.crc.uiuc.edu/poptopics/middle.html>

NMSA Research Summary. (1996b). Numbers of middle schools and students. Retrieved October 2, 2007, from <http://ceep.crc.uiuc.edu/poptopics/middle.html>

No Child Left Behind Act. (2001). Retrieved January 9, 2007, from <http://www.ed.gov/nclb/landing.jhtml?src=pb>

Norton, J. (2000). Turning points 2000 and the future of middle grades reform: An interview with Anthony Jackson. *Phi Delta Kappan*, 81, 19-21.

Pradini, P. (2002, March). Revival of the K-8 school. *The School Administrator*, 6-12.

Russell, J. (1997). Relationship between the implementation of middle-level program concepts and student achievement. *ASCD Journal*, 192, 169-185.

Sherman, L., & Hofmann, R.J. (1978). *Interrelationships amongst locus of control, socioeconomic status, sex, and achievement*. Paper presented at the 86th annual meeting of the American Psychological Association, Toronto, Ontario.

White, S. B., & Reynolds, P.D., Thomas, M. M., & Gitzlaff, N.J. (1993). Socioeconomic status and achievement revisited. *Urban Education*, 28, 328-343.

Wihry, D., Caladarci, F., & Meadow, C. (1992). Grade span and eighth-grade academic achievement: Evidence from a predominantly rural state. *Journal of Research In Rural Education*, 8, 58-70.

Yecke, C. P. (2005). *Mayhem in the middle*. Washington, DC: Fordham Institute.

APPENDIX A: LEVEL OF IMPLEMENTATION OF THE COMPONENTS

What is the Level of Implementation of the Components of the Middle School in Virginia?

It is my intent to determine the level of implementation of each of these components of the middle school design at the middle schools Grades 6 through 8 in Virginia. Respondents to this survey will be asked to respond yes or no to each question. This survey will be sent to schools containing Grade 8 with test scores for each of the 3 years: 2001,2002, and 2003.

Domains to be evaluated based on previous surveys (Alexander, 1969, 1989):

Domain 1: Advisor/Advisee Program - Students are assigned to a teacher/advisor who will function as the students advocate, advisor, and point of contact for the parent. Ideally this grouping stays together for the middle school years.

Domain 2: Integrated Thematic Curriculum - Teams of teachers work together to develop units of study around a particular theme which includes objectives from each of the core areas.

Domain 3: Teaming - This relates to both teachers and students. Teacher teams include a teacher from each of the core areas whose classrooms are close together, who have a common schedule, and share a specific group of students. Students are to be heterogeneously grouped for instruction.

Domain 4: Parent Support and Involvement – Parents are kept informed of activities and student progress and there is time for parent conferences during the contractual day. Teachers have strategies for keeping parents informed.

Domain 5: Block Planning for Team Teachers – Teachers have two planning periods. One of these periods is for personal planning and the other is for team meetings, parent conferences and lesson and activity planning. It is also used to address student concerns and to meet with students if necessary.

Domain 6: Exploratory Program – Students have the opportunity to participate in non-academic classes of particular interest to young adolescents during the school day. Some element of choice is present.

APPENDIX B: DOMAINS AND RELATED QUESTIONS IN SURVEY

Survey Domains	Related Questions in Survey
Advisor/Advisee Program	8, 11, 15, 18, 29
Integrated Thematic Curriculum	1, 5, 10, 22, 24
Teaming	6, 14, 26, 27, 30
Parent Support and Involvement	2, 7, 16, 23, 25
Block Planning for Team Teachers	4, 9, 12, 17, 19
Exploratory Program	3, 13, 20, 21, 28

14.Parent Support			5	100	64
15.Integrated Curriculum		5	100		
16.Teacher Teams			5	80	
17.Teacher Teams			3	67	
18.Block Planning					5 60
19.Advisor/Advisee	5	100			
20.Exploratory Program					

APPENDIX D: PRINCIPALS' SURVEY OF MIDDLE SCHOOLS' IMPLEMENTATION LEVEL

Instructions:

Each of the following questions relates to one of the key components of the middle school design. Please read the question thoughtfully and choose the answer that best indicates this factor at your school.

At the end of this questionnaire are several questions which will provide the demographic information that will allow for the controlling of outside factors which effect academic achievement. As a result, the survey information can be used to accurately reflect the interaction of the middle school design and its relation to SOL scores.

Please answer each question by choosing yes or no listed below each question.

1. Your school has a curriculum that integrates strands from more than one core area for instructional purposes.
 - a. yes
 - b. no

2. Information for parents is available from several different sources, for example, Web site, newsletter, dial-out system.
 - a. yes
 - b. no

3. Students have the opportunity to choose courses beyond the core curriculum.
 - a. yes
 - b. no

4. All teachers have two planning periods even if the periods are not blocked together
 - a. yes
 - b. no

5. Teachers from each of the core curriculum areas work together with a specific groups of students - a team.
 - a. yes
 - b. no

6. None of the core teachers instruct classes of students not assigned to this specific team of students.
 - a. yes
 - b. no

7. Teachers have a newsletter or web page to communicate team activities to the parents.
 - a. yes
 - b. no

8. Advisory groups are scheduled to meet on a regular basis; this period of time involves student interactions beyond attendance taking.
 - a. yes
 - b. no
9. Teachers have an extended planning time when they can meet as a group to address student and curricular concerns.
 - a. yes
 - b. no
10. Field trips are designed to correlate with a curricular theme.
 - a. yes
 - b. no
11. A small number of students meet regularly with an adult who knows them on an individual basis.
 - a. yes
 - b. no
12. Parents are permitted to visit classrooms during the instructional day.
 - a. yes
 - b. no
13. Students have some choice of interest-based classes during their school day.
 - a. yes
 - b. no
14. The eighth grade is organized differently from the sixth (if present) or seventh grades.
 - a. yes
 - b. no
15. The advisory group stays together with the same teacher for more than one year.
 - a. yes
 - b. no
16. Your school provides time for parent conferences, usually during teacher planning periods.
 - a. yes
 - b. no
17. All core teachers have two planning periods and share common planning time.
 - a. yes
 - b. no
18. The students feel familiar enough with a particular teacher that they consider them an advocate.
 - a. yes
 - b. no
19. One of a teacher's planning periods is unencumbered to allow for personal planning.
 - a. yes
 - b. no

20. Students at your school have the opportunity to participate in programs and activities based on the needs and interests of early adolescents.
 - a. yes
 - b. no
21. The Exploratory Program at your school rotates students through a series of classes on a set schedule.
 - a. yes
 - b. no
22. The curriculum is planned so that teachers can reference objectives from other curricula areas.
 - a. yes
 - b. no
23. The teachers have a plan for keeping parents of at-risk students informed of daily performance.
 - a. yes
 - b. no
24. Thematic instruction is part of the instructional focus at my school.
 - a. yes
 - b. no
25. The teachers at have enough planning time to schedule parent conferences.
 - a. yes
 - b. no
26. Core teachers instruct students from more than one grade level.
 - a. yes
 - b. no
27. Projects and assignments contain objectives from more than one core curricula area.
 - a. yes
 - b. no
28. Students are introduced to areas beyond the core curriculum, drama, music, computer skills.
 - a. yes
 - b. no
29. Students are assigned to meet regularly with an adult who acts as their advocate (advisor).
 - a. yes
 - b. no
30. All grade levels at your school are organized into core teams.
 - a. yes
 - b. no

Demographic Information

Please answer the following questions using the 04-05 data:

Average Daily Attendance _____

Student Mobility Index _____

Special Education _____

Limited English Proficiency _____

Percent of Students receiving Free/Reduced Lunch _____

Students who are; Black _____

American Indian _____

Hispanic _____

Other Minority Groups _____

APPENDIX E: LETTER FOR STUDY PARTICIPATION

2738 King Iron Court
Woodbridge, VA 22192
April 7, 2006

Dear Colleague:

As principals in Virginia, we are charged with the task of attaining full accreditation as well as meeting the standards set by the No Child Left Behind legislation. This requires the best learning environment, organizational structure, and teaching strategies available.

The middle school and its design components are currently under attack by their critics. The major point of concern is the relationship between these components and philosophy and student achievement. As part of my doctoral study, I am conducting a survey of randomly selected schools in Virginia containing Grade 8. The focus of my study is the level of implementation of the middle school design, if any, and the level of student achievement on the Virginia Standards of Learning tests in Reading and Math.

The survey is on the Internet and will not take more than five minutes to complete – yes or no answers. It will also ask for some basic demographic data. It is anticipated that the results of this study will demonstrate that when the middle school components are implemented, adolescents do better academically. This information about the middle school design components will provide us with the data needed to move forward with the renewal effort, as well as indicate the setting in which adolescents can be most successful. Your participation and knowledge as a principal of middle level students will be invaluable to the success of this study. Please fill in your e-mail address on the enclosed post card and return it to me. You will receive an e-mail shortly after with your link to this survey.

The information gathered from this study will be held in strictest confidence. There will not be an identification of schools by name, nor will there be a comparison or evaluation of individual schools. You may contact me at puttrep@yahoo.com if you have any questions.

Thank you in advance for your participation in this important endeavor.

Yours truly,
Catherine Puttre
Middle School Principal and
Doctoral Candidate at Virginia Tech

APPENDIX F: RESPONSE POSTCARD MESSAGE

Ms. Puttre:

Please e-mail me at _____.

I understand that this address will not be shared with anyone but used solely to gather the data needed for this Doctoral study.

_____ I would like to receive a copy of the study summary.

_____ I am not interested in receiving a copy of the study summary.

Name _____ School _____

APPENDIX G: FOLLOW-UP LETTER

2738 King Iron Court
Woodbridge, VA 22192
May 30, 2006

Dear Colleague:

As principals in Virginia, we are charged with the task of attaining full accreditation as well as meeting the standards set by the No Child Left Behind legislation. This requires the best learning environment, organizational structure, and teaching strategies available.

The middle school and its design components are currently under attack by their critics. The major point of concern is the relationship between these components and philosophy and student achievement. As part of my doctoral study, I am conducting a survey of randomly selected schools in Virginia containing grade 8. The focus of my study is the level of implementation of the middle school design, if any, and the level of student achievement on the Virginia Standards of Learning tests in Reading and Math.

The survey is on the Internet and will not take more than five minutes to complete – yes or no answers. It will also ask for some basic demographic data. It is anticipated that the results of this study will demonstrate that when the middle school components are implemented, adolescents do better academically. This information about the middle school design components will provide us with the data needed to move forward with the renewal effort, as well as indicate the setting in which adolescents can be most successful. Your participation and knowledge as a principal of middle level students will be invaluable to the success of this study. Please fill in your e-mail address on the enclosed post card and return it to me. You will receive an e-mail shortly after with your link to this survey. If you are reluctant to put your e-mail address on a post card, please e-mail me at puttrep@yahoo.com.

The information gathered from this study will be held in strictest confidence. There will not be an identification of schools by name, nor will there be a comparison or evaluation of individual schools.

You may contact me at puttrep@yahoo.com if you have any questions. Thank you in advance for your participation in this important endeavor.

Yours truly,

Catherine Puttre
Middle School Principal and
Doctoral Candidate at Virginia Tech

APPENDIX H: FOLLOW-UP LETTER

2738 King Iron Court
Woodbridge, VA 22192
July 25, 2006

Dear Fellow Educator:

A few weeks ago I wrote to you seeking your input regarding the implementation of the middle school design at your school. As of today, I have not yet received your e-mail address as I am conducting a survey on-line.

My study will be one of the first of its kind to demonstrate the relationship of the level of implementation of the design to student success on the Standards of Learning tests. Three years scores on the Math and Reading Standards of Learning tests for all Eighth Graders in Virginia. Schools will neither be identified nor compared. Confidentiality will be strictly respected.

The survey will be sent to randomly selected principals in Virginia. For this reason, the responses to every questionnaire are critical. If this study is to truly reflect the relationship of the middle school design to academic achievement for Eighth-grade students, it is essential that each principal in the sample complete the questionnaire. It should take no more than five minutes to complete.

In the event that you are uncomfortable sending your e-mail address on a postcard, I am asking that you send it to me at puttrep@yahoo.com.

Your participation in this important study is greatly appreciated. Please

indicate that you would like a copy of the results of this survey when it is completed.

Sincerely,

Catherine P. Puttre
Middle School Principal
Doctoral Candidate at Virginia Tech

APPENDIX I: DATA ANALYZED FOR STUDY

Read Average	Math Average	Survey. Total	Ses	%Minority	ADA	Advisory Program.	Teacher Teams	Exploratory Program	Block Schedule	Parent Involvement	Integrated. Curriculum
54.56	65.08	25	68	82	95	1	3	4	5	5	4
79.53	83.33	23	18	23	95	2	3	5	3	5	3
77.12	72.94	16	3	0	95	1	3	1	1	5	4
56.76	41.92	26	9	10	96	1	4	5	4	5	4
72.73	75.72	21	34	15	96	1	3	4	2	5	3
78.57	78.64	25	45	67	95	4	2	5	2	5	4
76.79	75.97	23	28	52	95	0	4	4	5	4	4
81.99	76.81	20	15	15	94	2	2	5	3	3	3
49.90	40.27	22	17	18	93	4	3	5	0	4	5
91.54	93.09	24	12	11	96	2	2	5	5	5	3
63.76	59.22	22	51	4	92	2	2	5	4	4	3
64.86	72.20	26	63	39	98	1	5	4	5	4	5
76.68	41.36	25	50	44	95	2	4	5	4	3	5
78.90	78.24	27	21	31	96	4	2	5	4	5	4
47.22	44.51	27	43	76	97	3	4	5	3	5	4
64.15	54.64	22	36	73	96	1	3	4	5	4	4
73.36	70.73	17	43	8	95	3	1	5	4	3	0
75.38	76.18	27	18	18	97	4	2	5	5	5	3
71.02	54.03	18	35	1	97	4	1	4	4	3	1
69.66	79.74	28	35	68	95	4	4	5	5	5	4
68.24	71.92	27	32	34	95	3	3	5	4	5	4
40.73	70.15	25	41	31	95	2	3	5	4	5	4
75.63	75.83	27	38	4	97	5	3	5	3	4	4
74.64	73.66	20	31	38	95	1	2	5	4	4	2
68.09	73.05	32	45	8	95	5	5	5	5	5	5
82.43	68.45	21	52	82	95	3	4	3	5	3	5
67.82	63.95	24	19	20	97	4	3	5	2	4	4
83.36	81.44	18	7	16	94	3	1	5	0	5	3
63.05	60.47	28	55	82	95	2	4	5	5	5	5

Read Average	Math Average	Survey. Total	Ses	%Minority	ADA	Advisory Program.	Teacher Teams	75 Exploratory Program	Block Schedule	Parent Involvement	Integrated. Curriculum
74.24	75.32	17	25	37	95	2	3	5	1	4	2
63.24	54.90	23	25	6	95	2	3	5	2	4	4
74.95	74.60	31	18	1	98	5	4	5	5	5	5
79.84	70.49	21	42	8	95	4	2	5	2	5	2
71.02	65.80	25	36	60	94	4	3	3	4	5	4
89.46	91.96	20	10	13	95	1	3	5	4	3	3
81.76	88.66	25	16	54	95	2	4	5	5	5	3
56.68	63.18	21	23	54	94	3	2	5	2	4	4
59.00	75.87	25	25	95	94	2	4	5	5	4	4
71.89	71.74	26	55	52	96	4	3	4	4	5	4
74.31	80.72	28	27	23	96	4	2	5	5	5	4
78.10	75.84	30	13	43	95	4	4	5	5	5	4
74.72	74.44	20	42	0	96	3	1	4	3	5	2
81.67	80.92	26	18	53	96	1	3	5	5	5	5
58.00	79.65	31	15	36	95	5	4	5	5	5	5
65.00	65.15	26	43	29	95	3	4	5	5	5	3
73.16	80.92	24	42	69	94	4	3	4	4	4	4
76.19	77.88	23	30	32	98	4	3	5	4	3	3
68.83	67.65	27	32	25	97	2	3	5	5	5	4
73.39	70.49	28	52	55	96	4	4	5	4	5	5
44.68	66.62	20	40	11	94	3	2	4	4	3	3
66.03	57.01	26	46	27	96	1	4	5	5	5	4
59.33	74.34	30	56	76	96	4	4	5	5	5	5
87.14	86.55	28	12	40	98	4	4	4	5	4	5
62.43	71.13	25	62	54	95	1	4	5	4	5	5
80.76	85.31	29	19	27	95	4	3	5	5	5	4
58.00	63.96	20	63	99	94	3	2	5	3	4	2
67.62	58.85	19	39	2	93	4	1	4	2	4	2
72.57	79.89	14	43	2	93	1	1	3	4	3	1
70.25	72.83	23	23	20	96	3	2	5	5	3	3
66.29	68.97	20	40	100	97	1	2	5	3	5	2

Read Average	Math Average	Survey. Total	Ses	%Minority	ADA	Advisory Program.	Teacher Teams	Exploratory Program	Block Schedule	Parent Involvement	Integrated. Curriculum
57.07	58.59	33	53	100	95	3	2	3	5	3	14
64.86	62.87	21	52	60	95	0	3	5	5	3	3
88.62	85.41	23	16	20	95	5	4	4	0	4	5
79.80	84.27	28	19	30	98	4	3	4	5	5	4
69.58	72.67	21	5	6	95	3	4	5	0	3	4
67.07	55.06	23	54	66	94	2	2	5	5	4	3
60.55	63.96	21	46	72	96	2	2	5	4	4	3
75.53	60.44	24	37	30	95	1	4	5	4	4	4
72.37	76.85	26	37	7	95	3	3	5	5	5	4
70.28	65.60	21	52	0	95	1	2	5	2	5	3
70.95	59.18	20	56	50	96	2	3	5	3	5	4
68.42	69.59	25	28	49	95	2	4	4	3	3	3
71.00	58.51	22	32	1	96	1	4	5	2	5	4
60.82	54.09	24	67	45	94	3	4	5	1	5	5
81.88	85.51	27	0	38	95	3	3	5	4	5	5
52.66	35.56	27	8	34	96	4	3	5	5	5	3
66.78	68.88	18	45	50	94	1	2	3	4	3	3
89.37	84.24	21	10	4	94	2	3	5	4	4	2
59.09	50.66	18	60	61	95	1	2	4	2	3	4
63.72	49.11	23	48	0	94	2	3	5	3	4	4
85.12	93.34	23	30	46	96	2	3	4	3	4	4
74.91	72.83	22	15	8	97	1	2	5	5	4	3
88.75	90.97	25	8	55	96	1	3	5	5	4	4
85.18	88.88	28	7	18	95	5	4	4	5	5	4
63.10	71.61	22	38	9	96	4	2	3	3	4	3
78.20	61.87	21	0	10	95	5	3	4	5	5	4
70.95	80.98	27	17	41	97	2	3	5	3	4	4
65.82	64.16	27	42	26	96	4	3	5	5	5	3
85.27	87.85	20	8	22	95	2	2	5	5	5	1
66.41	68.22	27	27	10	96	2	4	5	5	5	5

Read Average	Math Average	Survey. Total	Ses	%Minority	ADA	Advisory Program.	Teacher Teams	Exploratory Program	Block Schedule	Parent Involvement	Integrated. Curriculum
63.33	62.89	28	36	92	99	3	3	5	5	5	4
90.02	92.89	21	4	17	97	1	4	5	4	4	2
86.84	84.49	27	38	46	96	1	3	3	3	3	0
68.89	82.65	14	11	26	95	4	3	4	2	4	4
82.56	78.89	23	30	1	96	4	3	5	3	5	4
71.53	66.80	22	25	14	95	2	4	5	1	4	5
69.99	65.49	25	23	35	96	3	3	5	4	5	3
88.16	93.64	24	27	31	97	2	3	5	5	4	3
70.87	76.89	25	30	61	95	2	3	5	5	5	4
62.94	57.81	17	47	3	96	1	2	5	2	3	2
75.25	73.87	27	18	12	96	2	3	5	5	5	4
65.64	57.94	27	28	4	96	3	2	5	5	5	4
79.75	82.71	21	7	46	94	1	3	5	3	4	4
47.00	60.50	23	41	68	95	2	3	5	3	3	5
78.03	76.87	22	34	68	94	2	1	5	5	5	2
87.00	89.11	22	8	29	98	4	1	5	4	3	3
78.15	77.76	24	20	24	95	3	2	5	4	5	3