THE RELATIONSHIP BETWEEN MIDDLE LEVEL GRADE CONFIGURATION AND MODEL PRACTICES ON STUDENT ACHIEVEMENT IN URBAN SCHOOL DISTRICTS

By

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This document is dedicated to my parents, George Schuchmann and Maureen Rodas, for providing me with a solid foundation, to my husband, Brad, for his 21 years of steadfast love and support, and to my children, Austin and Tyler, for the fine young men they have become.

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LIST OF DEFINITIONS

Association of Middle Level Educators (AMLE)	Formerly called the National Middle School Association, this organization is dedicated to the education of early adolescents. The organization changed its name in 2011, to be more inclusive of the variety of grade spans in which the students are educated.
Charter Schools	Charter schools are independent public schools created to provide parents with additional choice. These schools are given more flexibility to innovate and offer specialized programs, while still maintaining accountability under the state guidelines.
Co-curricular Program	Programs that provide opportunities outside of the regular graded coursework that provide leadership roles, exploration in special interests, and socialization for students.
Common Planning	Teams of teachers with a common group of students are assigned a block of time to plan together on a daily basis.
Developmental Scale Score (DSS)	A score created from reported scale scores to help parents and educators understand the year-to-year progress of a student.
Exploratory Courses	Courses that provide required curricular opportunities for students to explore abilities, talents, and interests through diverse elective opportunities.
Florida Comprehensive Achievement Test (FCAT)	A criterion-referenced achievement test used as part of Florida's state accountability system used to determine student, school, district, and state progress administered yearly to students in grades three through eleven.
Free or Reduced Price Lunch Rate	The rate of students in a school that qualify for a free or reduced price lunch, which is often used as an indicator of poverty.
Grade Level Configurations	An organizational pattern of grade levels contained within a school. The schools used in this study were limited to sixth through eighth and kindergarten (or pre-kindergarten) through eighth grade-level configurations.
K-8 School	A school that contains students enrolled in kindergarten (or pre-kindergarten) through eighth grade.
Heterogeneous Grouping	Scheduling students of mixed abilities into courses together in order to create a relatively even distribution of students in each classroom.

Interdisciplinary Teaming	Teams of 2 to 5 teachers that share a common group of students, common planning time, and are located in close proximity to each other.
Looping	Also called student-teacher progression or multi-year teaching, looping is the practices of keeping a small group of teachers together with the same group of students for two or more years.
Magnet Schools	A public school that offers a specialized curriculum or program within district and state guidelines typically used to attract substantial numbers of students from diverse backgrounds.
Middle School	A school between elementary school and high school, typically with students in grades six, seven, and eight.
Minority Rate	The term used in the state of Florida to describe the percent of students identified as non-white within a school or school district.
Sunshine State Standards (SSS)	Developed as part of the Florida accountability system, these standards are broad statements regarding what students at each grade level should know and be able to do.
Transition	The process of moving from one level of schooling to the next level at another school site.

LIST OF ABBREVIATIONS

AMLE	Association of Middle Level Educators Next word
DSS	Developmental Scale Score
ESL	English as a Second Language
FCAT	Florida Comprehensive Assessment Test
FLDOE	Florida Department of Education
LEP	Limited English Proficient
NAESP	National Association of Elementary School Principals
NASSP	National Association of Secondary School Principals
NELS	National Educational Longitudinal Study
NMSA	National Middle School Association
OPPAGA	Office of Program Policy Analysis and Government Accountability
SES	Socio-Economic Status
SSS	Sunshine State Standards

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Before investing a large amount of human and financial resources in grade configuration redesign, urban school administrators need to understand whether it is the large structural changes, like grade configuration redesign, or whether it is the practices implemented within those larger structures that make the biggest impact on student achievement. In this study, 32 K-8 configured schools in the southeast United States are paired with 32 6-8 configured schools with comparable SES and minority rates within the same urban school district. This research uses the results from 192 educator surveys to determine the implementation level of established model practices, including interdisciplinary teaming, common teacher planning, heterogeneous grouping, advisory periods, exploratory courses, and looping. In addition, the reading and math achievement gain scores from the Florida Comprehensive Test of 12,727 sixth grade students are used to determine if there is a relationship between any of the practices, the grade level configuration of the school and student achievement in an urban setting.

There were differences in student achievement by grade configuration, with the students in K-8 schools making significantly greater gains in both reading and math; however, that increase may well be due to other factors such as grade level size or

socioeconomic differences rather than the configuration of the school. Of the model practices examined, interdisciplinary teaming was the only model practice that had a significant difference in level of implementation, which was higher in the K-8 configured schools. When achievement gains were compared to the level of implementation of each of the six model practices, no significant relationships were found. Finally, there was no difference in combined effects of grade configuration and implementation of model level practices with gains in student achievement in reading or mathematics.

CHAPTER 1
INTRODUCTION

Background Information

With the nationwide downturn in the economy, every sector of society seems to be learning to do more with less. Because of their dependence on state and federal revenue, public schools are not exempt from tightening budgets (McNeil, 2009). Even though school coffers have been greatly diminished, federal and state mandates for student performance have not. Perhaps now more than ever, public school administrators are scrutinizing every aspect of their organizations to determine those practices that provide the best results for the least amount of money. One trend in educational reform that has gained attention recently is how to best configure grade spans in schools to maximize both efficiency and student performance (Craig, 2006; Epstein, 1990; Howley, 2002).

Ten years ago, a one-year dip in student academic achievement for middle level students was not perceived as a monumental loss for most school administrators. The decline could be attributed to a variety of factors, including the transition to a new school, a change in socialization, or the onset of puberty (Alspaugh, 1995; Alspaugh, 1998; Eccles, Lord, & Midgley, 1991). With the advent of the “No Child Left Behind” Act, school leaders are scrambling to maximize student learning gains at every level (United States Department of Education, 2008). In addition, most states have developed accountability systems that result in status and monetary rewards for gains in achievement and sanctions for achievement losses (United States Department of Education, 2009). Any dip in achievement at any grade level can mean a loss in state

and federal funds, a decline in student enrollment, the stigma of being labeled as a failing school, and even threats of reconstitution or school closure.

School districts across America have used a variety of grade configurations throughout our history. When free public education was first introduced in this country, one-room schoolhouses servicing all students in grades one through eight were the norm (Manning, 2000; Sailor, 1986). The junior high school movement began in the early 1900's, when colleges proposed that time spent in the 1-8 and 9-12 configuration model wasted the middle years that could be better-spent preparing youth for postsecondary school. The middle school movement with a sixth through eighth grade configuration began in the 1970s, growing out of a concern from educators and researchers that junior high schools were not meeting the developmental and educational needs of early adolescents (George & Alexander, 1993). By the 1990s, most students in grade six were attending a middle school with a 5-8 or 6-8 grade configuration. Most of the remaining K-8 configured schools were either private or parochial institutions, or located in more rural areas of the country (Craig, 2006; Eccles et al., 1991; Howley, 2002; Manning, 2000).

Founded in 1973, the National Middle School Association (NMSA) was developed to bring together educators who were dedicated to the implementation of research-based, developmentally appropriate practices designed to improve the outcomes of middle level learners (NMSA, 1982). The middle school design was developed out of a concern that middle level students needed an instructional program that was more developmentally responsive to the unique needs of early adolescents than was offered in our elementary and junior high schools (Alexander & McEwin,

1989b; George & Alexander, 1993; Manning, 2000; NMSA, 1982). At the time, the design had more to do with the instructional program and design structure than grade span, although there was considerable debate about the most developmentally appropriate setting for fifth and sixth grade students, in particular.

Through research, NMSA identified a number of exemplary practices designed to meet the needs of these students (1982). They included the following: (a) heterogeneous grouping, (b) common planning for teachers, (c) student-teacher progression or looping, (d) advisory programs, (e) exploratory courses, and (f) interdisciplinary teaming, with students arranged in smaller learning communities within the school. Historically, research has shown that middle schools are more likely to implement these exemplary practices than other grade configurations, leading to more frequent progress monitoring and assistance, better instructional practices, and more exploratory opportunities for students (Alexander & McEwin, 1989b; Epstein & MacIver, 1990; Irvin, Valentine, & Clark, 1994; Jenkins & McEwin, 1992; MacIver & Epstein, 1993, McEwin & Alexander, 1990)

More recently, however, larger school districts around the country are choosing to convert a portion of their large middle schools to neighborhood K-8 configured schools (Look, 2002a; Office of Program Policy Analysis and Government Accountability [OPPAGA], 2005; Pardini, 2002; Patton, 2005). School districts have high hopes that the conversion will result in improved student discipline, higher attendance rates, more parental involvement, and greater student achievement. Since public K-8 schools are a relatively “new” configuration in more urban areas, there is little research to support the changeover. In part because of the rising number of schools making the

shift to a K-8 configuration, NMSA changed its name in 2011 to the Association of Middle Level Educators (AMLE) to better reflect the common commitment to educating early adolescents, regardless of the configuration of the school (AMLE, 2011).

Most of the earlier academic research centering on grade configuration focuses on rural areas, which may not translate to the desired results in urban areas of the country. Studies have been conducted with mixed results in many rural areas of the country, including Tennessee, Louisiana, Missouri, Connecticut and Maine (Alspaugh, 1995; Blair, 2007; Coladarci & Hancock, 2002b; Franklin & Glascock, 1998; Johnson, D. J., 2002; Tucker & Andrada, 1997; Wihry, Coladarci, & Meadow, 1992). Several of these studies have provided evidence that academic achievement levels in reading, math, and science for students in grades 6 through 8 attending a K-8 school may be higher than their middle school peers, but the researchers also cite other factors that may contribute to the increased scores, such as school size and smaller numbers of students in each grade level within the school.

Some of the most current research testing the K-8 model in urban areas has been conducted by school districts themselves. Cleveland, Cincinnati, Philadelphia, Miami, and Baltimore public school systems have all undertaken studies of their respective K-8 redesigns (Abella, 2005; Balfanz, Spiridakis, & Neild, 2002; Baltimore City Public School System Division of Research, Evaluation and Accountability, 2001; Pardini, 2002). These districts cite improved discipline, attendance, and student achievement for middle level learners in the K-8 design. Much of this internal research was conducted by district staff in their respective school systems or by contracted researchers in an effort to find supporting evidence for costly school reconfigurations.

Because much of the research was conducted internally, external validation would add to the credibility of the findings.

There is a growing body of research that indicates that transitions from one level of schooling to the next causes stress in children, which could lead to a fragmentation in their learning experiences (Blyth, Simmons, & Bush, 1978; Paglin & Fager, 1997; Toepfer, 1990a). Both Wise (2000) and Alspaugh and Harting (1995) found student achievement losses the year following a transition regardless of the grade in which the transition occurred. Researchers have also found a correlation between the number of transitions a student is required to make and dropout rates (Alspaugh, 1995). Simmons and Blyth (1987) found that an increased number of transitions has a negative effect on self-esteem, which is most pronounced for adolescent girls. Toepfer (1990b) suggested that the effects of transitioning can be lessened by responsive practices within the school, such as orientations, summer programs, and teaming.

Statement of the Problem

Before investing a large amount of human and financial resources in grade configuration redesign, urban school administrators need to understand whether it is the large structural changes, such as grade configuration redesign, or the practices implemented *within* those larger structures that make the biggest impact on student achievement. Middle school advocates argue that the developmentally appropriate practices implemented as part of the middle school design are most important to the success of early adolescents (Ecker, 2002; George & Shewey, 1994; Irvin et al., 1994). On the other hand, some researchers are proposing that the elimination of a transition from one school to the next using a K-8 grade configuration will contribute more to the

success of middle level learners (Alspaugh, 1995, 1998; Eccles et al., 1991; Offenberg, 2001).

This research compares the level of implementation of middle level exemplary practices established by the NMSA/AMLE (NMSA, 1982; NMSA, 1995) to determine if there is a relationship between any of the practices and student achievement for students in an urban setting. In addition, the research will compare the level of implementation of the same best practices to determine whether the degree of implementation varies by grade configuration of the school. Next, the study will compare academic achievement for students in a K-8 configured school with those in a 6-8 design. Finally, the research will study the combined effects of grade configuration and model practice implementation on academic achievement gains for sixth grade students in urban districts. The study will use both educator questionnaires to determine the level of implementation of best practices, as well as existing student achievement data in both reading and mathematics from the state accountability tests.

The Florida Comprehensive Assessment Test (FCAT) is a criterion-referenced test that measures student academic achievement in reading and mathematics on a yearly basis for students in grades three through ten (Florida Department of Education, 2011b). Although student scores are expressed as proficiency levels from one to five for general reporting, the students also receive a Developmental Scale Score (DSS), which is used to track student progress from year to year. In addition to determining individual student performance, the data are also used as high-stakes measures of school and district progress under the state and federal accountability programs. Publicly funded schools within the state of Florida can also receive sanctions or financial rewards

depending on the collective achievement levels and progress of the students within the school.

The study also contains a survey component developed by the National Association of Secondary School Principals (NASSP) to determine the level of implementation of those exemplary practices identified by the NMSA/AMLE, including interdisciplinary teaming, common teacher planning, advisory programs, heterogeneous grouping, exploratory opportunities, and looping. The NASSP has sponsored two extensive national studies regarding successful middle level leadership and effective practices for middle level learners (Valentine, Clark, Hackmann, & Petzko, 2002; Valentine, Clark, Hackmann, & Petzko, 2004). In preparation for the 2002 study, the research team developed a lengthy survey instrument containing 170 items. The survey is divided into sections, including school and principal demographics, school leadership, school programs, school reform and professional development, instructional practices, curricular and co-curricular programs, school organization, and leadership issues. Over 14,000 middle level principals participated in the 2002 study. Since this research focuses mainly on the implementation of effective middle level practices, only the portions of the survey corresponding to those practices were used.

Purpose of the Study

The purpose of this study is to compare, when controlling for school and individual student demographic factors, the degree to which the implementation of exemplary practices within the two grade configurations were related to student achievement measures. In addition, the study also attempts to compare the level of implementation of the exemplary practices to determine which setting is most likely to fully implement the practices. The study further compares student achievement in

reading and mathematics for students in a K-8 grade configuration with that of students in a 6-8 middle school model. Finally, the study examines the combined effects of model practices and grade configuration on academic achievement levels in reading and mathematics for sixth grade students enrolled in K-8 urban schools to those of students who attend a traditional 6-8 middle school in urban school districts.

Research Questions

Question 1: Is there a relationship between any of the exemplary practices identified by NMSA/AMLE, including (a) interdisciplinary teaming, (b) common teacher planning time, (c) heterogeneous grouping, (d) student advisory, (e) exploratory courses, and (f) looping, and student achievement – as measured by student gains on the Florida Comprehensive Tests of Achievement Sunshine State Standards (FCAT-SSS) assessment system – for sixth grade students in K-8 and 6-8 middle schools in large urban school districts, when controlling for school and student demographic factors?

Question 2: Are there differences in levels of implementation of NMSA/AMLE-identified exemplary practices in urban K-8 configured schools when compared to 6-8 configured middle schools?

Question 3: Are there differences in academic achievement in reading and mathematics for sixth grade public school students in K-8 configured schools when compared to sixth grade students in 6-8 configured middle schools, as measured by the Florida Comprehensive Tests of Achievement Sunshine State Standards (FCAT-SSS) assessment system?

Question 4: Is there a relationship between the level of implementation of exemplary middle level practices and academic achievement as measured by the

Florida Comprehensive Tests of Achievement Sunshine State Standards (FCAT-SSS) assessment system for sixth grade students enrolled in urban K-8 configured schools compared to similar students in 6-8 middle schools?

Hypotheses

The following null hypotheses guided the investigation:

Ho_1: There is no relationship between the implementation of exemplary middle level practices and student achievement gains as measured by the FCAT SSS Developmental Scale Score for sixth grade students in urban school districts when controlling for school demographic factors of school size, grade level size, minority rate, SES rate, LEP rate, and ESE rate.

$Ho_1 1$: Interdisciplinary Teaming

$Ho_1 1_a$: Reading Achievement

$Ho_1 1_b$: Mathematics Achievement

$Ho_1 2$: Common Teacher Planning Time

$Ho_1 2_a$: Reading Achievement

$Ho_1 2_b$: Mathematics Achievement

$Ho_1 3$: Heterogeneous Grouping

$Ho_1 3_a$: Reading Achievement

$Ho_1 3_b$: Mathematics Achievement

$Ho_1 4$: Student Advisory

$Ho_1 4_a$: Reading Achievement

$Ho_1 4_b$: Mathematics Achievement

$Ho_1 5$: Exploratory Courses

$Ho_1 5_a$: Reading Achievement

$Ho_1 5_b$: Mathematics Achievement

$Ho_1 6$: Looping

$Ho_1 6_a$: Reading Achievement

$Ho_1 6_b$: Mathematics Achievement

Ho_2: There are no significant differences in the implementation of exemplary middle level practices in schools configured as K-8 compared to traditional middle schools with a 6-8 grade configuration.

$Ho_2 1$: Interdisciplinary Teaming

$Ho_2 1_a$: 6-8 Grade Configuration

$Ho_2 1_b$: K-8 Grade Configuration

$Ho_2 2$: Common Teacher Planning Time

$Ho_2 2_a$: 6-8 Grade Configuration

$Ho_2 2_b$: K-8 Grade Configuration

$Ho_2 3$: Heterogeneous Grouping

$Ho_2 3_a$: 6-8 Grade Configuration

$Ho_2 3_b$: K-8 Grade Configuration

$Ho_2 4$: Student Advisory

$Ho_2 4_a$: 6-8 Grade Configuration

$Ho_2 4_b$: K-8 Grade Configuration

$Ho_2 5$: Exploratory Courses

$Ho_2 5_a$: 6-8 Grade Configuration

$Ho_2 5_b$: K-8 Grade Configuration

$Ho_2 6$: Looping

$Ho_2 6_a$: 6-8 Grade Configuration

$Ho_2 6_b$: K-8 Grade Configuration

Ho_3: There are no significant differences in student achievement gains as measured by the FCAT SSS Developmental Scale Score for sixth grade students in a K-8 school compared to the same students in a traditional 6-8 middle school.

$Ho_3 1$: Reading Achievement

$Ho_3 1_a$: 6-8 Grade Configuration

$Ho_3 1_b$: K-8 Grade Configuration

$Ho_3 2$: Mathematics Achievement

$Ho_3 2_a$: 6-8 Grade Configuration

$Ho_3 2_b$: K-8 Grade Configuration

Ho_4: There is no relationship between exemplary middle school practices and student achievement gains as measured by the FCAT SSS Developmental Scale Score for sixth grade students who attend K-8 schools implementing exemplary middle level practices compared to the same students attend traditional middle schools implementing the practices at the same level.

$Ho_4 1$: Interdisciplinary Teaming

$Ho_4 1_a$: 6-8 Grade Configuration

$Ho_4 1_{a1}$: Reading Achievement

$Ho_4 1_{a2}$: Mathematics Achievement

$Ho_4 1_b$: K-8 Grade Configuration

Ho_41_{b1}: Reading Achievement

Ho_41_{b2}: Mathematics Achievement

Ho_42: Common Teacher Planning Time

Ho_42_a: 6-8 Grade Configuration

Ho_42_{a1}: Reading Achievement

Ho_42_{a2}: Mathematics Achievement

Ho_42_b: K-8 Grade Configuration

Ho_42_{b1}: Reading Achievement

Ho_42_{b2}: Mathematics Achievement

Ho_43: Heterogeneous Grouping

Ho_43_a: 6-8 Grade Configuration

Ho_43_{a1}: Reading Achievement

Ho_43_{a2}: Mathematics Achievement

Ho_43_b: K-8 Grade Configuration

Ho_43_{b1}: Reading Achievement

Ho_43_{b2}: Mathematics Achievement

Ho_44: Student Advisory

Ho_44_a: 6-8 Grade Configuration

Ho_44_{a1}: Reading Achievement

Ho_44_{a2}: Mathematics Achievement

Ho_44_b: K-8 Grade Configuration

Ho_44_{b1}: Reading Achievement

Ho_44_{b2}: Mathematics Achievement

$Ho_4 5$: Exploratory Courses

$Ho_4 5_a$: 6-8 Grade Configuration

$Ho_4 5_{a1}$: Reading Achievement

$Ho_4 5_{a2}$: Mathematics Achievement

$Ho_4 5_b$: K-8 Grade Configuration

$Ho_4 5_{b1}$: Reading Achievement

$Ho_4 5_{b2}$: Mathematics Achievement

$Ho_4 6$: Looping

$Ho_4 6_a$: 6-8 Grade Configuration

$Ho_4 6_{a1}$: Reading Achievement

$Ho_4 6_{a2}$: Mathematics Achievement

$Ho_4 6_b$: K-8 Grade Configuration

$Ho_4 6_{b1}$: Reading Achievement

$Ho_4 6_{b2}$: Mathematics Achievement

Limitations

There were a number of limitations to this study. These limitations are listed below.

1. The study was limited to the Florida Comprehensive Achievement SSS data in reading and mathematics reported to the state of Florida for the 2009-2010 and 2010-2011 school years.

2. Although the researcher recognizes that sixth graders can be educated in a variety of grade-level configurations, this study was limited to two configurations: (a) sixth grade students in schools with sixth through eighth grade, and (b) pre-kindergarten or kindergarten through eighth grade configurations.

3. The study was limited to a comparison of public K-8 and middle schools in urban districts larger than 100,000 students in the state of Florida

participating in the state accountability system and may or may not be representative of other K-8 and middle schools in the United States.

4. The extent to which the survey responses by educators in the respective schools represent the actual practices within the schools may limit the quality of the findings.

5. The study was limited to only those students who had achievement scores for both the 2009-2010 and the 2010-2011 school years. In addition, the study only included students in the K-8 design who had achievement data for the previous school year within the same K-8 school. Therefore, this study fails to account for the achievement of students who transfer to or from different school systems. Schools with high mobility rates would tend to confound the number of school-to-school transitions.

Delimitations

In addition to the limitations already presented, there were several delimitations associated with this research study. Those delimitations are presented below.

1. The study is delimited to the data offered by the research and evaluation departments provided by the identified districts of the participating schools.

2. Only middle schools and K-8 schools identified by the Florida Department of Education (FLDOE, 2011) were included in this study because an ample number of K-8 and comparable middle schools were available in that region, and all students took identical achievement tests.

3. K-8 and middle schools identified as charter schools or dedicated magnet or theme-based schools were not included in this study.

4. Achievement scores were limited to gains from fifth to sixth grade only. Gain scores from students retained in sixth grade during the 2009-2010 school year were not included in this study.

5. Information from educators within the school about implementation of practices was delimited to a single set of questions related to degree of implementation provided in an online or paper survey.

Assumptions

The study also makes two assumptions regarding this research. Those assumptions are the following:

1. The study was based on the assumption that the student achievement data were appropriate measures for comparing academic achievement of middle schools and K-8 schools.

2. A further assumption was that comparable kind and quality of curriculum and instruction were present in both configurations of schools.

CHAPTER 2
A REVIEW OF THE LITERATURE

One of the longest running debates in middle education research concerns the ideal grade span for early adolescents (MacIver & Epstein, 1993). Conrad Toepfer (1990b), one of the earliest advocates of the middle school movement, states that "middle grade schools are potentially society's most powerful force to recapture millions of youth adrift. Yet all too often these schools exacerbate the problems of young adolescents" (p. 96). Researchers predict that in the future, young people who receive a high school education or less will not be able to make a livable income off blue collar jobs (United States Department of Education, National Center for Education Statistics, 2010). Therefore, it is more important today than ever before that children receive an education that will help them become competitive in the global marketplace of the twenty-first century.

Over the past four decades, student achievement has shown steady increase for middle level learners. Haycock and Ames (2000) reported that in the 1970s and 1980s, not only did middle school achievement scores rise in reading, mathematics, and science for eighth grade students, the racial student achievement gap narrowed significantly. However, that gap began to widen again in the early 1990s, with white students making steady progress, while the academic growth of their minority-race peers remained stagnant. In 1995, achievement scores for all subgroups in eighth grade began improving; however, the racial disparity gap between subgroups remained the same. In addition, while eighth grade scores have improved over the past two decades, researchers have suggested that the value-added scores have actually declined, and that the improvement in scores may have more to do with progress in fourth grade and

below than with anything that is happening in the middle grades (Haycock & Ames, 2003; Heller, Calderon, & Medrich, 2003). The implementation of the No Child Left Behind Act in 2001 caused public schools and school districts to reexamine all aspects of their school organization, including grade configurations, scheduling, grouping, and the length of the school day and school year (Lashway, 2000).

There are many factors surrounding grade configuration that may contribute to conditions that support the performance of middle level students. These include the actual grouping of grade levels within a school, the implementation of recommended practices for early adolescents, the number of transitions between schools that students are required to make, the size of the school and the number of students in each of the grade levels within the school (Howley, 2002; Lucas & Valentine, 2005). Middle school advocates argue that many schools configured with a sixth through eighth grade span are not doing well because they have simply changed grade configurations, without altering their program to include exemplary middle level practices (Hough, 2005; Pardini, 2002).

Little empirical research has been done on grade span and their effects on student achievement for middle level learners (Renchler, 2000). Most of the data available are local or regional and qualitative and anecdotal in nature (Pardini, 2002). Of the studies available, most compare and contrast achievement of students in schools with varied grade arrangements and do not consider fidelity to the implementation of recommended practices for middle level students (Offenberg, 2001). The evidence from existing studies suggests there is little clear middle level organizational configuration

that is better than the others in terms of student achievement gains and implementation of developmentally appropriate practices (Blair, 2007; Klump, 2006: Viadero, 2008).

A Historical Perspective of Grade Configuration for Adolescent Students

The debate surrounding grade configuration dates back to 1888, when Harvard President Charles Eliot stated that the current configuration of grades 1 - 8 and 9 - 12 was wasted time that could be better spent on preparing students for college (Manning, 2000; Sailor, 1986). In the early 1900s, colleges and universities proposed that schools develop a 1 - 6 and 7 - 12 model, moving seventh and eighth grade students to secondary schools in an effort to provide larger numbers of students with specialized training to enter college or a chosen vocation.

The junior high school movement began in 1909 with the opening of Indianola Junior High School in Columbus, Ohio (Lounsbury & Vars, 2003, Manning, 2000). In 1913, the Committee on Economy of Time in Education presented a report proposing that the grade configuration be changed from a 6-6 organization to a 6-3-3 elementary/junior high/high school model (Pate & Muth, 2003). Five years later, the Commission on the Reorganization of Secondary Education released a supporting document titled *Cardinal Principles of Secondary Education*, which also advocated the 6-3-3 junior high model (Lounsbury & Vars, 2003).

Sailor (1986) reported that in 1920, only 10% of students starting first grade finished high school, and nearly 30% dropped out of school before completing the ninth grade. It was during this era that Koos (1920) wrote the seminal book, *The Junior High School*, which advocated the adoption of the junior high school model, spanning grades seven through nine, for many of the same reasons that the middle school reform was adopted decades later (Pate & Muth, 2003). There were three main imperatives that

spawned the junior high movement: (a) more rigorous curricular offerings for college-bound students, (b) increased vocational courses for those students who would be entering the workforce, and (c) more developmentally-appropriate instruction for early adolescents (Manning, 2000). Despite the recommendation of experts at the university level, 80% of early adolescents were still attending K through 8 schools during this time period (Alexander & McEwin, 1989a).

When roads improved after World War I, schools began to consolidate and increase in size, encompassing larger geographic areas (Howley, 2002). By 1945, the junior high model had become the majority model for use (Lounsbury & Vars, 2003; Strauss, 2005). By 1960, 80% of all graduates attended an elementary school, followed by a junior high and a three-year high school (Alexander & McEwin, 1989a). Although early documents indicate more altruistic reasons for the change in grade configuration, several authors suggest that the initial junior highs were created to relieve overcrowding in elementary schools caused by the high birth rates following World War I and the implementation of early childhood programs in the 1950s and 60s (Craig, 2006; George & Alexander, 1993; Sailor, 1986).

By the 1960s, the baby boomers who had overcrowded the elementary schools in the 1950s were now in upper elementary schools. Rather than build new schools, fifth and/or sixth grade students were moved to the junior high schools to create more room in the elementary schools for the growing populations (Beane & Lipka, 2006). For example, in a study from 1979, researchers found that of 41 middle schools in New York, the majority were created for building space and financial reasons (Moss, Jackson, & Jackson, 1979).

According to Banks (2004), the first middle school was created in Bay City, Michigan in 1950; however it was not until 1963 that William Alexander, who is considered by most the father of the middle school movement, first used the term “Middle School” during a speech at Cornell University (Lounsbury & Vars, 2003; Pate & Muth, 2003). Heller (2003) reported that renaming junior highs as “middle schools” was considered more than just symbolic. First, it rejected the notion that education for early adolescents deserved a “second class status implicit in the word ‘junior’” (p. 2). Additionally, the new name signified a renewed professionalism and distinction for middle level educators. In sum, it marked the beginning of a new movement of reform in the education of early adolescents. Ironically, many of the reasons used to support the movement to middle schools were the same used by educators decades earlier to support the reorganization to junior high schools (Valentine et al., 2002). The middle school movement initially began as a reaction to the failure of junior high schools to respond to the unique needs of early adolescents, to develop an atmosphere of more rigorous learning, and to create a place for modern teaching techniques to occur, such as open classrooms and team teaching (Manning, 2000; Sailor, 1986).

By the late 1960s, many 6-8 configured schools began to open in the Midwest (George & Alexander, 1993; Pate & Muth, 2003). A coalition of Midwestern schools formed a professional organization in 1971 called the Midwest Middle School Association, which was reorganized in 1973 as the National Middle School Association, and then renamed the Association for Middle Level Education in 2011 (Association for Middle Level Education [AMLE], 2011; Lounsbury & Vars, 2003; Pate & Muth, 2003).

Throughout the 1970s and 80s, grade school configurations across the country began to shift to a K-5, 6-8, 9-12 configuration (Craig, 2006).

By 1985, the middle school configuration of 6-3-4 had become the most common form of school organization for early adolescents (Lounsbury & Vars, 2003). From 1971 to 2000, the percentage of schools using the middle school configuration increased by 404%. During the same time period, the percentage of junior high schools with a 7-9 grade configuration decreased by 85% (Valentine, 2000). By 2000, three out of four middle schools enrolled sixth grade students (Cook, MacCoun, Muschkin, & Vigdor, 2007). Although a variety of grade configurations still exist throughout the United States, the vast majority of students ages 10 through 14 are educated in middle schools that begin in either fifth or sixth grade and end at eighth grade (Valentine, 2000). As many researchers continue to point out, however, the title of a school or the cluster of grades contained within does not make it an effective school.

Variations of Middle Level Grade Configurations

Differences in grade configuration are important because they drive decisions regarding scheduling, staffing, funding, and grouping practices that effect student learning (Lashway, 2000; McPartland, Coldiron, & Braddock, 1987). There are five common grade configurations for students in the 10 – 14-year-old age range. The first is a combination of elementary and middle school grades, usually encompassing kindergarten through the eighth grade. Middle/high schools contain grades 6 or 7 through grade 12. K through 12 schools includes elementary, middle and high school students. Junior high schools typically serve students in grades seven through nine. Finally, middle schools begin either in fifth or sixth grade and end with the seventh or eighth grade (Epstein, 1990).

Over the past few decades, the number of middle schools has increased dramatically, while the number of junior high schools has declined. For example, from 1970 to 2000, the number of middle schools grew over 650%, from 1,500 to 11,500 (Rockoff & Lockwood, 2010). In 1987, roughly half of sixth-grade students in public schools attended a K-6 school. By 2007, only one out of five students in sixth grade attended school in an elementary K-6 setting. In recent years, middle schools have been considered the most dominant organizational structure for early adolescents (DeJong & Craig, 2002; Herman, 2004; Mizell, 2005). In studying middle grade organization over a 30 year period, Valentine (2000) calculated that by the year 2000, 86% of early adolescents attended a school with some variation of the middle school organization (5-8, 6-8, or 7-8), with the remaining students in either a junior high 7-9 model (5%) or some other unspecified grade configuration (9%).

The K-8 model has always been a popular choice with private and parochial schools (Herman, 2004). In 2000, Renchler reported that 10% of all schools for early adolescents were elementary/middle combinations, or K-8 schools. Historically, most K-8 schools have been in either private institutions or rural areas (Eccles et al., 1991; Howley, 2002). In 1990, only about 9% of all seventh graders attended a K-8 school; however, nearly 32% of all school buildings were K-8 combination schools, which suggests that K-8 schools were typically smaller in size since they constitute such a small proportion of overall seventh-grade students (Epstein, 1990). Approximately 1% of schools house students in grades K-12 (Howley, 2002).

In 2000, principals were asked to identify the ideal grade configuration for middle level students. Sixty-five percent (65%) indicated 6-8, 9% preferred the 5-8 model, 16%

listed 7-8, and only 3% listed the old 7-9 junior high school model. The remaining 7% listed other configurations, such as K-8, 3-8, K-12, or 6-12 (Lucas & Valentine, 2005). Researchers believed this difference in opinion had more to do with philosophy than with hard data. For instance, most administrators believed that schools housing early elementary grades along with middle level students have a student-centered orientation, while secondary configurations have more of a subject area orientation (McPartland et al., 1987). In addition, the junior high model has been viewed as more bureaucratic and administrative in structure than the K-8 model (Eccles et al., 1991). McPartland et al. (1987) found that elementary configurations were more likely to have self-contained classrooms and ability grouping within the classrooms than their secondary counterparts. In addition, teachers in schools containing elementary grades are less likely to have certification in their subject areas (Sparks, 2004). Conversely, secondary schools are usually departmentalized, with separate tracks grouped by academic performance. Middle schools have nearly equal representations of both types of groupings.

There are many reasons why the schools change their grade configurations. Some schools choose configuration based on developmental similarity or to adopt a new program (Epstein & MacIver, 1990). More frequently, grade span is determined for other reasons, such as enrollment numbers, building space, parent preference and distance to the school, rather than on what is best for early adolescents (Craig, 2006; Paglin & Fager, 1997; White, 1993). For example, using data from the Schools and Staff Survey (SASS) from 1993-94, Alt and Hammer (2000) reported that the middle school grade configuration is less likely to be located in very small districts because they have

less flexibility to configure their schools in a variety of ways. Other factors for changing grade configurations could include changing demographics of the area, transportation costs, school size, number of transitions made by students, and overall school goals (Craig, 2006; Howley, 2002; Renchler, 2000).

Howley (2002) contended that the issue of grade span causes a great deal of controversy in rural areas, where reconfiguring grade structures can mean closing local schools. This notion is reinforced by Paglin and Fager (1997), who argued that changing grade configurations to isolate middle level students can be detrimental in small rural communities. Removing and separating middle level students can result in schools that are so small, they must consolidate in order to survive. Franklin & Glascock (1998) warned that schools must be careful not to create grade-segregated schools for purely financial or administrative purposes.

Ecker (2002) stated that proponents of the middle school design have created a feeling of “us against them” that may be a disservice to students (p. 30). This conflict has led to dissatisfaction with middle schools, resulting in consideration of other grade configurations. In 2002, Pardini predicted that the newest trend in grade span will be a return to the K-8 organization. In fact, the K-8 model has become an increasingly popular design in urban settings. A number of large cities, including New York, Minneapolis, Philadelphia, Baltimore, Cleveland, Cinncinati, Miami, Boston, New Orleans, San Francisco, Milwaukee, and Memphis, have converted or are in the process of converting a number of their schools to a K-8 design (Beane & Lipka, 2006; Hough, 2005; OPPAGA, 2005; Pardini, 2002; Patton, 2005; Reising, 2002; Turque, 2008; Viadero, 2008; Wallis, Miranda, & Rubiner, 2005; Waugh, 2004). Likewise,

Massachusetts, Pennsylvania, Ohio, Tennessee, Oklahoma, Maryland, and New York have statewide reforms which encourage the K-8 grade configuration (Hough, 2005; Reising, 2002). Reasons given by advocates for the conversion to the K-8 design include greater articulation in grades K through 8, fewer behavioral issues, improved safety, reduced transportation costs, and elimination of a transition at a critical developmental point for early adolescents (Beane & Lipka, 2006; DeJong & Craig, 2002). Other reasons given for this trend have included parent request, small-scale local research on academic achievement, and a growing discontent with the current structure.

As MacIver and Epstein (1993) have pointed out, grade organization alone is not a major determinant of whether a school is implementing practices responsive to the middle level student. Paglin and Fager (1997) offer several factors when considering the grouping of early adolescents, including the following: (a) consistency with community needs, (b) staff training and attitudes, (c) student needs, and (d) effects on other students in the school. The effectiveness of grade configuration is not simply a matter of changing grade spans, but rather of implementing programs responsive to the unique needs of middle school students. Therefore, when studying the effects of grade configuration, the researcher must also address the level of implementation of exemplary practices, not just grade configuration alone (Hough, 2005; Sailor, 1986). As Eccles et al. (1991) stated, “The extent of grade configuration effect depends on the characteristics of the schools themselves” (p. 532). Not all schools are able to change grade spans, but they all have the option of adopting best practices that support middle

level students (Epstein & MacIver, 1990). In other words, it may not be the grade span of the school, but what happens within those configurations that matters most.

Characteristics of Model Middle Schools

In 1982, the National Middle School Association (NMSA), which changed its name to the Association for Middle Level Educators (AMLE) in July 2011, published their landmark work, “This We Believe,” which provided educators clear direction for the education of young adolescents. NMSA/AMLE maintained that early adolescents need an educational program that is different than both elementary and high school. The true goal of the middle school movement was not about restructuring grade configurations, but about the implementation of programmatic elements that would best help students transition into adolescence (Alexander & McEwin, 1989b; Lounsbury & Vars, 2003). The main objective of middle level education is to create “responsive environments that provide students with care and support, as well as challenging programs that will increase their learning” (Epstein, 1990, p. 439).

There are several practices that have been deemed as effective in working with early adolescents (Alexander & McEwin, 1989b; Ecker, 2002; Johnson, A., 2002; Lipsitz, Mizell, Jackson, & Austin, 1997; Lucas & Valentine, 2005; MacIver & Epstein, 1993, NMSA, 1995; Neill, 1999). Key components of the middle school design include the following: (a) interdisciplinary teaming with flexible scheduling, (b) common planning time for teams of teachers, (c) heterogeneously grouped students, (d) advisory periods, (e) exploratory courses, and (f) looping (Valentine et al., 2004). Middle school advocates argue that structural changes such as houses, interdisciplinary teams, and advisories create a more personalized learning environment (Lipsitz et al., 1997). These special middle level structures allow for increased exploration, better interaction with

adults and peers, greater competence, clear structure and limits, meaningful participation, and more diversity in scheduling, teaching and curriculum (Dorman, Lipsitz, & Verner, 1985). Other exemplary practices for middle level learners include varied instructional strategies and orientation activities for both students and parents (Alexander & McEwin, 1989b; Ecker, 2002; Lucas & Valentine, 2005; NMSA, 1995).

Just because schools have changed grade configurations does not necessarily mean that they have changed practices and implemented these recommended changes. In fact, MacIver and Epstein (1993) presented research from the 1980s, at the height of the middle school reform movement, that suggested new middle schools and old junior high schools were surprisingly alike. Neill (1999) surveyed a group of principals and teachers in 32 accredited middle schools in Montana to determine both the perceived degree of importance of a number of practices for middle schools, and then the level of implementation in their own middle schools. The essential elements in the survey included practices such as common planning time for teachers, interdisciplinary teaming, exploratory experiences, heterogeneous grouping and advisory programs. The researcher found that although the educators rated all of the practices as “important” or “very important,” they indicated that they only had a moderate level of implementation in their own schools. The establishment of a common set of developmentally appropriate practices for early adolescents has allowed researchers to focus on the effectiveness of true middle school programs (Neighbors, 1998).

Interdisciplinary Teaming

An interdisciplinary team is a group of two to five teachers who share the same students, have common planning time, and are located in the same area of the building.

In terms of organizational practices, students should be heterogeneously grouped on interdisciplinary teams, with teachers who share a common daily planning period (Alexander & McEwin, 1989b; Ecker, 2002; Lucas & Valentine, 2005; MacIver & Epstein, 1993). In middle school, teams are also called “houses,” “clusters,” or “learning communities” (Epstein & MacIver, 1990). The purpose of the team arrangement is to create a feeling of closeness within a larger, more impersonal school. In interdisciplinary teaming, the academic block of instructional time with students is flexible, allowing teachers the freedom to adjust schedules within the time allotted to the team (Lucas & Valentine, 2005; Paglin & Fager, 1997). Extended time during the school day for academic enrichment or remediation is also included in the organizational structure of the school (Ecker, 2002).

There are many benefits to interdisciplinary teaming. For example, teaming is linked to a greater student sense of belonging, improved relationships with the families of students, and a more integrated curriculum (Beane & Lipka, 2006; Washington, 2000). From a survey of teachers, students, and administrators in 155 schools, researchers found that schools with interdisciplinary teaming had a more positive school climate, increased contact with parents, greater teacher job satisfaction, and higher student achievement (Flowers, Mertens, & Mulhall, 1999).

Teaming is also associated with more meaningful relationships between adults and students (Hackman & Valentine, 1998; Phillips, 2003). In a study by Arhar (1994), students in teamed schools rated themselves higher in “belonging” to their teachers and schools than students in schools that were not organized into teams. In another study, students from three middle schools in a major urban school district were interviewed

regarding their experiences in middle school. The researcher found that interdisciplinary teaming was related to group closeness, school-family identity, preparation for the future, and better student-teacher relationships (Gray, 2004).

Advocates of teaming indicate that the practice allows better communication, increased knowledge of each student, and a quicker response to students' needs, which may lead to greater student achievement (Hackman & Valentine, 1998). Aycock (2005) studied the effect of interdisciplinary teaming on student achievement in 49 middle schools in Mississippi. The researcher used results from the Mississippi Curriculum Test (MCT), the state's performance-based state assessment, as the measure of student achievement in schools with and without interdisciplinary teaming, and found that eighth grade academic achievement was higher in schools with interdisciplinary teaming. Similarly, in a study of 10 middle schools in a large urban district in the Midwest, educators were assessed regarding the level of implementation of several middle school practices. Interdisciplinary teaming was positively related to student achievement scores, especially in mathematics (Russell, 1997).

Balfanz and MacIver (2000) studied five high-poverty Talent Development Middle Schools in Philadelphia, and found similar student achievement gains. As part of the model, the schools adopted "communal organization" structures which were described as more personalized learning environments and increased student-teacher interactions within a small learning community. When these practices were combined with a variety of other components, such as professional development, student safety nets, and ongoing evaluation, students made significant gains in learning during the first year of

the implementation, although it is not stated in the research the degree to which communal organizational practices contributed to the learning gains.

Because the benefits of interdisciplinary teaming appear to be great, DeJong and Craig (2002) have recommended a teamed approach, regardless of grade level or grade configuration. Despite the advantages, interdisciplinary teaming occurs most frequently in middle schools than in other organizational patterns (Ritzenthaler, 1993). In a random sample of 300 schools, Alexander and McEwin (1989a) found that 6-8 configured middle schools more frequently used interdisciplinary teaming and flexible student grouping. Five years later, Irvin et al. (1994) found that teaming was most often used with students in sixth grade, and almost never used with students in the ninth grade.

The trend is beginning to turn, however, as more high schools have started to debate departmentalization versus teaming through smaller learning communities (DeJong & Craig, 2002). Lee and Smith (1995) researched the effects of high school restructuring and school size on student achievement and engagement. Using data from nearly 12,000 tenth graders from 830 schools participating in the National Educational Longitudinal Study (NELS), the researchers found that students who attended schools that implemented three specific practices had greater learning gains, were more academically engaged, and had more equitable gains in student achievement. Those practices included keeping students in the same homeroom throughout high school, implementing interdisciplinary teaching, and developing smaller learning communities of teachers and students within the school, much the same as the developmentally responsive practices suggested for middle level learners.

Common Teacher Planning Time

Common planning time is an essential element of interdisciplinary teaming. In an effort to reduce the isolated learning of academic content by subject area, middle school teachers are grouped into interdisciplinary teams in which they are expected to collaborate and plan together (Toepfer, 1990a). To better coordinate activities and instruction, team teachers must be provided time together on a daily basis. The National Center for Public Education and Social Policy has recommended that teachers be provided with 3 to 4 hours of common planning a week (Erb & Stevenson, 1999). This time is to be used to plan for curriculum integration across subject areas, review student work, coordinate student assignments, analyze assessment data, communicate with parents, and collaborate on the effectiveness of instructional approaches (NMSA, 2003). White (1993) maintained that with common planning, teachers are able to provide a curriculum centered on thematic-based units that are directly related to student interests and needs.

In a study of the Michigan Middle Start Initiative, the researchers found that with increased amounts of common planning time, the quality of team interactions also increased. In addition, teachers with increased common planning were more likely to implement desired instructional practices. They also found that the highest gains in average reading and mathematics scores for seventh grade students over a two year period were achieved by schools that provided increased levels of common planning time for their teachers (Mertens, Flowers, & Mulhall, 1998).

In a related study of 155 middle schools in Michigan, researchers studied the impact of teaming on five research-based outcomes (Flowers, Mertens, & Mulhall, 1999). Using survey data from teachers, administrators, and students, as well as

student achievement data from the Michigan Educational Assessment Program (MEAP), the researchers determined that common planning was essential to the effectiveness of interdisciplinary teaming. In addition, schools with the highest levels of common planning had the highest gains in student achievement on the MEAP.

Middle school advocates have stressed that common planning is a key factor in student success (Heller et al., 2003). Hoy and Sabo found that student achievement increased where teachers felt they had strong support among themselves (1998). Likewise, researchers conducted a case study of three nationally recognized Blue Ribbon middle schools serving students from grades six through eight in an Oklahoma suburban school district. Through interviews and observations of teachers, students, counselors, and administrators, they found there were two common practices associated with all three schools: a wide array of exploratory courses and common planning for teachers (Weibling, 1997).

Heterogeneous Grouping

Turning Points: Preparing American Youth for the 21st Century (Jackson & Davis, 2000), a report from the Task Force on Education of Young Adolescents, cited a number of recommendations for middle level educators, including the elimination of tracking. Although there are arguments for ability-grouping, such as the need for teachers to adapt instruction to specific needs of students, there are far more reasons to abandon the practice. Researchers cite damage to low achievers, less qualified teachers in lower-ability level classrooms, and the perpetuation of class and racial inequalities as a result of tracking (Heller et al., 2003; Slavin, 1993; Stroud, 2002).

Mills (1998) found that tracking has a negative effect on lower-tracked student motivation for more challenging courses. In the study, the researcher found that 82% of

middle schools used some form of ability grouping, with math and reading being the subjects most commonly grouped by ability level. Mills also found that the practice of tracking makes school schedules less flexible.

Using data from the Longitudinal Study of American Youth (LSAY), Hoffer (1992) conducted a four-year study of middle and high school mathematics and science teachers, as well as students drawn in pairs from middle and high schools to determine the long-term effects of tracking. Schools were chosen by community type and region of the country, and the results were controlled for social background and initial achievement effects. The researcher found that placing low-achieving students in low-level math courses had no positive long-term effects. In fact, Heller et al. (2003) suggested that low- to average-level students benefit from being intentionally placed in a track higher than they would ordinarily be assigned. In a similar study by Mason, Schroeter, Combs, and Washington (1992), 24 students were placed in advanced mathematics classes. Those students scored higher on a math assessment than the cohort group. Perhaps more importantly, those same students went on to take more advanced classes in mathematics than their peers who were placed in the less challenging mathematics courses.

In a review of 27 research studies regarding middle grades tracking, Slavin (1993) found that the effects of ability grouping are zero. Similarly, Betts and Shkolnik (2000) have stated that grouping has little effect on achievement regardless of whether students are high, average, or low achieving. Since tracking appears to have little or no positive effects, national experts advise that model middle school teams should consist of a group of diverse learners, with flexible grouping practices within the team of

students. In this way, the needs and abilities of all the students can be better served (National Association of Elementary School Principals [NAESP], 1984).

Student Advisory

One of the most notable practices in a school that serves middle level students is the development of strong advisory groups, also referred to as “home base” or “teacher-based guidance” (Stevenson & Erb, 1998). A main tenet of the middle school movement is that every child should be known well by at least one caring adult (Carnegie Council on Adolescent Development, 1989). The National Middle School Association (1995) has identified advisory groups as one of the six general characteristics of a developmentally responsive middle school. In advisory, the role of the teacher is expanded to that of a supporter, role model, and critical adult friend for a specified group of students (MacLaury & Gratz, 2002). In an effort to keep the groups small, most schools use all certified staff within the school, including guidance personnel, administrators, and elective and physical education teachers.

The purpose of the advisory groups is not counseling, because the time is not spent discussing individual difficulties. Instead, advisories are comprised of activities that provide an opportunity for the adult to get to know the students on a more personal basis, to become the students’ advocate, and to recognize when a particular student may need more intensive help, both academically and socially (NMSA & NAESP, 2000). There are generally six purposes of advisory programs including the following: (a) building relationships between student and teacher; (b) fostering a sense of team spirit among the students; (c) building life skills; (d) relaxing and recharging while engaged in fun activities; (e) developing and monitoring study habits; and (f) housekeeping and organizational activities, such as daily announcements or organizing for a field trip

(Galassi, Gulledge, & Cox, 1997). There is some disagreement among educators about what kinds of activities should be included in advisories, but virtually all iterations include a caring adult who regularly communicates with students in a positive way (Caccamo, 2000).

Although there was little empirical evidence of its effectiveness at the time, in 1984 Florida passed legislation that funded school advisory programs, providing $4 million for middle schools (Galassi et al., 1997). Since that time, a body of research has emerged that suggests that advisory programs have a significant impact on students at all grade levels (Caswell, 2003).

Schools with teacher-led advisory groups are viewed by students as having a more personalized learning environment, in which students view their teachers as a primary source for academic or personal problems (Fibkins, 1999). For example, MacLaury and Gratz (2002) surveyed 71 low-income minority fifth and sixth grade students about their academic performance, the school environment, and social supports within the school. 44 of the students participated in an advisory group and 27 did not. Students who participated in the advisory groups were more likely to feel safe confiding in a teacher and indicated that they were more likely to seek out help.

In a case study of students from an urban middle school in Philadelphia, Brown (2001) reported that students participating in advisory groups were more proficient in goal setting, participated in more community service activities, and had established more personal trusting relationships within the school. Goodwin (2003) reported similar advantages in a qualitative study of one urban middle school in New York. Study responses indicated that advantages of advisory groups include a less chaotic learning

environment, relationships between teachers and students that are characterized by care, and the presence of a positive role model to act as a mentor and guide when students experience problems.

Establishing a supportive school environment through advisories can also lead to increased academic achievement (Caswell, 2003). Roeser, Midgley, and Urdan (1996) surveyed nearly 300 eighth grade students in two suburban middle schools and found that positive perceptions of teacher-student relationships were predictive of end-of-year student grades.

In a study of over 200 middle schools in 16 states, Caswell (2003) researched the effects of advisory programs on student adjustment and academic outcomes. The schools in the study were all participants in the Carnegie Corporation's Middle Grade School State Policy Initiative (MGSSPI). Using the High Performance Learning Community Assessments, surveys were collected from 3,837 teachers and 113,598 students. The researcher studied the length of the advisory structure, advisory practices, teacher attitudes, and student experiences and their effect on student grades and classroom behavior. The research revealed that advisory structures were significantly positively related to five advisory practices: (a) conversations about career and college issues, (b) implementation of student-initiated projects, (c) individual and small group meetings, (d) parent communication, and (e) total advisory practices combined. In addition, students reported that advisory practices influenced their feelings of safety.

Advisory programs are also linked to other research that indicates its significant positive impact. For instance, students in schools with advisory programs experience

less absenteeism (Lipsitz et al., 1997), have fewer disciplinary problems (Connors, 1992; Lounsbury, 1996), and are less likely to drop out of school (MacIver & Epstein, 1993; Ziegler & Mulhall, 1994). Advisory groups also appear to have positive effects for teachers. These teachers report a greater sense of professional efficacy, (Felner, Seitsinger, Brand, Burns, & Bolton, 2007; Lounsbury, 1996), communicate with parents more frequently (Ziegler & Mulhall, 1994), and collaborate more closely with their peers (Caswell, 2003; Lipsitz et al, 1997).

Despite the reported merits of using advisory groups, Caswell (2003) found that only one-third of the 200 middle schools in her study had advisory programs. While middle school implementation of advisory programs may have hit a plateau, the practice appears to be growing in high schools. Sometimes referred to as “distributed counseling,” advisory groups have been identified as one of the seven guiding principles of restructured high schools by the Institute for Student Achievement, a non-profit educational organization in New York that works with high school students with academic or social challenges (Hochman, Tocci, & Allen, 2005). Similar to the middle school advisory, responsibility for counseling with students is distributed across the entire high school faculty so all students can be known by at least one caring adult within the learning community. Educators for Social Responsibility also advocate the use of advisory practices in an effort to personalize the learning environment for high school students (Poliner & Lieber, 2004).

There are several factors that are critical to the success of an advisory program. Teachers need tangible support from their school administrators in the form of time, materials, and supplies. Secondly, activities that students enjoy spanning a variety of

topics need to be developed. Finally, the best advisory programs have a school wide coordinator who facilitates the planning of student activities and assists the teachers with planning (Galassi, Gulledge, & Cox, 1997).

Exploratory Courses

In addition to the core academic courses, middle level students need exposure to a wide range of high-interest activities called exploratories (NMSA, 1995). Exploratory activities were developed around the notion that early adolescents need high-interest, wholesome opportunities for socialization. This outlet can be provided in a number of ways, including mini-courses, intrascholastic athletics, performing groups, clubs, and electives (George & Alexander, 1993; George & Shewey, 1994; Lounsbury & Vars, 2003). Exploratory activities include, but are not limited to, student participation in music, the visual and performing arts, world languages, technology, physical education, and vocational arts (Raymond, 2005). Because the goal is to expose students to a wide array of interest areas, exploratory courses are typically six to nine weeks long for 40 minutes to an hour daily (Manning, 2000; Aycock, 2005).

According to Heller et al. (2003), academic success is significantly related to the degree to which student interests are incorporated into the curriculum. Exploratory activities provide students with an opportunity to develop interests in activities that support the core curriculum. The effects of exploratory courses were researched in a study that included over 300 middle schools in Colorado (Raymond, 2005). Using student achievement data on the Colorado State Achievement Test, and school-wide data from the state's database of School Accountability Reports, the researcher compared the number of exploratory courses offered with school achievement, and

found a positive correlation between school achievement and the number of exploratory course offerings.

The positive effects of exploratory courses on student learning are well documented. For example, there are a number of research studies that cite the benefits of the arts in education. Butzlaff (2000) researched 24 correlational studies about the effects of music on reading and found that students studying music have significantly higher scores on standardized tests; however, the author is careful to note that this correlation does not necessarily imply causality. In a review of 16 research studies, Hetland (2000) found that there is a positive effect of music on students' visual/spatial skills. Burton, Horowitz, and Abeles (2000) conducted a research study of over 2,000 children in 28 schools from 4 different regions of the country to determine if cognitive skills were developed through the arts. The research, which combined both qualitative and quantitative data, determined that a flexible art curriculum, including arts integration, is associated with creative thinking, fluency, focused perception, and persistence. In addition, students exposed to the arts have a better perception of accomplishment in reading and mathematics. In a review of 25 studies, including both experimental and correlational designs, Vaughn (2000) found a small positive effect on student mathematics performance during math tests. Outside of arts, Schreiber and Chambers (2002) conducted a research study including over 8,000 students in grades eight and ten, and found that academic extracurricular activities outside core instruction were consistent predictors of student achievement.

McEwin and Alexander (1990) found that since many middle school facilities were newer than K-8 schools, they tend to have more updated facilities designed

specifically for exploratory activities. This may be changing, as more new schools are being designed specifically for K-8 students. For example, Miami-Dade County Public Schools have designed a prototype school designed specifically for students in grades K through 8 that include specifically designed space for computer labs, collaborative activities, arts suites, and outdoor space suitable for both elementary and middle level students (Miami-Dade County Public Schools [M-DCPS], 2011).

2011 marked the end of the federal stimulus funding for education, resulting in a $100 billion shortfall on top of deficits already experienced in states and local communities due to the declining economy ("Education Budget Cuts," 2011; Washington Post, 2011). While in the past, many districts have tried to spare programs like elective courses, art, music, and physical education, these new cuts will invariably have an effect on the ability of schools to maintain these programs (Krugman, 2011).

Looping

Looping is the practice of keeping a small group of teachers together with the same group of students for two or more years (Aycock, 2005). Looping is also referred to as teacher-student progression, multi-year teaching, multi-year grouping or multi-year assignment (McCown & Sherman, 2002). The premise of looping is that teachers will invest more of themselves and be less likely to give up on marginal students, because they know they will be working with the students for a number of years (George & Alexander, 1993). In addition, relationships with families are enhanced by years of interaction with the same groups of students. Another benefit is that teachers save valuable instructional time at the beginning of the school year, which is typically lost with introductions to classroom rituals and routines that have already been established the previous year (Darling-Hammond, 1997).

Although looping has attracted increased attention in the past two decades, it is not a new concept. It was first suggested in 1913 by the United States Department of Education for students in grade-leveled city schools, so that the teachers could better build on the work of the earlier years of instruction. In Germany, students routinely stay with the same teacher for first through fourth grades (McCown & Sherman, 2002).

Lee, Smith, Perry and Smylie (1999) found that the practice of looping with students for two or more years resulted in student reports of increased feelings of support. McCown and Sherman (2002) conducted a case study of looping in one Kansas middle school in which 1 team of students and teachers looped from seventh to eighth grades, while the other two teams of students did not. The researchers found a number of advantages associated with looping. For instance, the teachers reported that they already knew the academic needs of students and were able to accomplish more instructional goals during the first two weeks of school. In addition, teachers understood the emotional needs of their students, particularly those students with special needs. Both parents and teachers reported a stronger rapport between home and school. Students reported less apprehensive about starting a new school year. Teachers reported that the greatest benefit may have been for students with disabilities, and said that they found many of their ESE students were performing on grade level by year 2 and required less specialized support, as a result.

Recent research supports the use of looping to increase student achievement. In a study of 240 middle school students in Georgia, Gregory (2009) studied the impact of looping on academic achievement and social experiences. Using standardized test data and surveys of student perception, the researcher found that looping had a positive

effect on student perceptions of social experiences. Also significant was the positive correlation between reading, writing, and mathematics scores and the degree of participation in looping. In a similar study, Fuller (2006) conducted research to determine if looping resulted in academic achievement in reading, language and writing. The researcher used student achievement data from 69 students who remained with the same group of teachers for seventh and eighth grade, and 142 students who were assigned two different groups of teachers for each year. Results from the study indicated that the students in the group that looped experienced greater learning gains than their non-looping peers.

Combined Effects of Developmentally Responsive Practices

In the earlier years of the reform, the middle school movement prospered more on faith than research (Lounsbury & Vars, 2003). In 1990, Epstein reported that most schools that enrolled seventh grade students had not yet adopted the majority of the recommended responsive middle school practices. More recently, other authors have also suggested that middle schools are moving away from developmentally appropriate practices (Franklin, 2001; Kaiser, 2000). Beane and Lipka reported that “most often the title of ‘middle school’ has had less to do with implementing the concept and more to do with changing the name on the front of the building” (2006, p. 28). Many schools adopted the middle school concept in grade configuration alone, without adopting the affective and organizational components of the design (Beane & Lipka, 2006, Hough, 2005; Sailor, 1986; Valentine et al., 2002). Lipsitz et al. (1997) have stated that many middle schools are poised for reform because of structural or organizational changes, but have yet to make the next step to academic excellence.

The body of research regarding the implementation of multiple developmentally appropriate practices has resulted in a variety of findings. Anfara and Lipka have stated, “attempts to ascertain the relationship between middle level reform and student achievement have yielded ambiguous and conflicting results” (2003, p. 25). For example, in a study of 75 middle schools in Alabama, Neighbors (1998) studied the relationship between the implementation of middle school practices and student achievement. Using the New England League of Middle Schools (NELMS) recommendations for appropriate middle level practices, Neighbors found no significant relationship between student achievement and high levels of implementation of the middle school model. The NELMS recommendations seem to be more about educational practices that would be applicable to any level of schooling, such as teaching a core of common knowledge, engaging families, and empowering teachers, rather than practices that have been specifically designed for middle school students, such as interdisciplinary teaming, common teacher planning, and student-teacher advisory groups.

In 2003, Spurgeon found more encouraging results in a study that compared the implementation of middle school practices with student achievement. In this study, data were collected about the attendance, disciplinary referrals, and achievement in science and math. Participants in the study included 600 students in three Midwestern middle schools. The researchers used the following practices to determine implementation of the middle school model: (a) interdisciplinary teaming, (b) advisory programs, (c) varied instruction, (d) exploratory programs, (e) transition programs, and (f) grade-level configuration change. The researcher found that the implementation of the practices

had a significant effect on sixth grade attendance rate, seventh grade disciplinary referral rate, and eighth grade student achievement, indicating that the combined effects of the practices may have some effect on the overall performance of students.

A team of researchers conducted a study of the Illinois Middle Grades Network (IMGN), consisting of 97 middle schools participating in a restructuring reform using Carnegie's Turning Points Report (Felner, Jackson, Kasak, Mulhall, Brand, & Flowers, 1997). As part of the study, the researchers developed what they referred to as the "Carnegie Index of Middle School Transformation," identifying key constructs and structures for effective middle level implementation, including teaming, common planning, low teacher to student ratio, and regular advisory periods. Their research indicated that middle schools with the highest level of implementation of these best practices had the highest scores in mathematics, language and reading on student achievement tests.

Mertens and Flowers (2003a) had similar results in a research study using data from the School Improvement Self-Study conducted by the Center for Prevention Research and Development at the University of Illinois. The researchers collected surveys from 3,500 participants, including teachers, administrators, parents and students at 121 schools in rural communities in Arkansas, Louisiana, and Mississippi that were considered high poverty and ethnically diverse. Student achievement was based on standardized test scores from the SAT9 and the Iowa Tests of Basic Skills. Findings included a strong association between school level curriculum coordinator and interdisciplinary instructional practices. In addition, common planning was found to be related to higher reading scores, and the sustained implementation of teaming

combined with common planning showing the most positive results in terms of student achievement.

Blue Ribbon Schools is a national program that recognizes effective, exemplary schools based on a variety of eligibility requirements including the following: (a) visionary leadership, (b) shared purpose, (c) positive school climate, (d) challenging curriculum, (e) student academic achievement, (f) stakeholder support and (g) commitment to improvement. Ranta (2001) studied seven Blue Ribbon Schools in New Jersey to determine that implementation of the essential characteristics of effective middle schools. He found that there was a positive relationship between the implementation of middle school exemplary practices and middle schools identified as Blue Ribbon Schools of Excellence, with Blue Ribbon Schools in New Jersey having a higher level of implementation of essential middle school characteristics than the comparison group of schools.

Bush (1999) conducted a case study of one middle school that had been fully implementing the middle school concept for 12 years. Through surveys, interviews, and a review of school-based documents, she found that the most influential factors to full program implementation included: (a) a dedicated faculty, (b) administrative support, (c) district support for the identified organizational structures and practices, and (d) student attitudes. She also listed a number of factors that were identified as impeding the implementation, including: (a) teacher resistance, (b) lack of professional development, (c) limited time for collaboration, (d) state mandates and accountability issues, (e) student behavior issues, (f) class size, and (g) changes in school-based leadership.

Effective middle level programs are not solely defined by grade configuration. The concepts appropriate to middle level students can be carried out in any kind of school grade configuration (Hough, 2005; Offenberg, 2001). For example, Manning and Saddlemire (1996) have suggested the implementation of a variety of middle school concepts in high schools, including advisory groups, exploratory programs, and interdisciplinary teams. The goals of middle school reform are apparently not unique to early adolescents. The purpose of the middle school reform was to create “high performing schools that are developmentally responsive, academically excellent, and socially equitable” (Lipsitz et al., 1997, p. 534), a goal that is still viable today.

Implementation of Model Practices by Grade Configuration

Much of the research regarding the implementation of middle grades model practices by grade configuration is limited and older and may not reflect the current implementation of the new K-8 model. Most of the studies focused on the old junior high structure as compared to what was considered the modern middle school, at the time. K-8 data regarding implementation of the practices was considered almost anecdotal, since the majority of the students were being educated in junior highs or middle schools. However, there were a few studies that shed light on where these practices were being implemented to the fullest.

Using data from the Hopkins Education in Middle Grades Survey (Becker, 1987) and the National Education Longitudinal Study of 1988 (Ingels, Abraham, Rasinski, Karr, Spencer, & Frankel, 1990), researchers conducted a series of analyses to determine differences in grade organization for middle level students. The researchers found that middle schools with 6-8 or 7-8 grade configurations were slightly more likely to adopt responsive practices recommended for adolescents (MacIver & Epstein, 1993).

In a national random sample of 300 schools, Alexander and McEwin (1989a) found that 6-8 configured middle schools more frequently use interdisciplinary teaming, flexible grouping, and random assignment in basic classes. Middle school teachers were also found to visit other middle schools more frequently than teachers from schools of other grade configurations. The K-8 configuration had almost as much departmentalization as the middle and junior high models, but with much less team planning.

Common planning periods for interdisciplinary teams were most often found in 6-8 and 7-8 schools (Epstein, 1990). Interdisciplinary teams were most frequently found in 5-8 or 6-8 teams, and least likely to be found in 7-9 junior high schools. Teaming was offered to sixth grade students most often and almost never to students in the ninth grade (Irvin et al., 1994). With 98% offering remedial courses, middle schools were most likely to have additional help for students during the school day (MacIver & Epstein, 1993), although it is not clear whether remedial course offerings effect the ability of schools to heterogeneous group students. In addition, middle schools used informal progress reports more often than other grade configurations (Alexander & McEwin, 1989a). Instructionally, middle school teachers were found to be more likely to use the following instructional practices: (a) discovery methods in science, (b) problem-solving in mathematics, (c) increased writing across the curriculum, and (d) student debate. At the same time, they were less likely to use drill and practices then their K-8 and junior high school counterparts (Epstein & MacIver, 1990).

Middle schools were twice as likely to use advisory groups or “home base” than are K-8 schools (Alexander & McEwin, 1989a; McEwin & Alexander, 1990). Lounsbury and Johnston (1988) found that middle school programs dealt more directly with current

issues, such as sex, alcohol, drugs, social and emotional development, and personal adjustment than schools in the K-8 configuration. In a survey of principals who served students in the middle grades, Epstein (1990) found that middle school principals in a 6-8 configuration ranked personal growth and development higher than principals in any other grade configuration.

McEwin and Alexander (1990) found that since the middle school concept was the newest of the designs, middle schools tended to have newer facilities that are needed for the exploratory courses. In fact, studies at the time showed that students in middle schools have more exploratory choices than middle level students in other grade configurations (Jenkins & McEwin, 1992; Lounsbury & Johnston, 1988). Schools with 6-8 grade configurations tend to offer health, computer education, and sex education, which were not commonly offered in the K-8 configuration (Alexander & McEwin, 1989b). In addition, all club types, including photography, newspaper, dances, intramural sports, and student council were found to be more prevalent in the middle and junior high configuration than in the K-8 design (McEwin & Alexander, 1990).

The advantages of the middle school concept include more interdisciplinary teaming and teacher advisory programs, schedules that are more flexible, and more comprehensive exploratory and intramural programs (McEwin & Alexander, 1990, Valentine et al., 2002). However, the research regarding middle school practices is not all positive. One of the main criticisms seems to be that middle schools have placed too much emphasis on creating a nurturing environment and too little focus on academic rigor and achievement (Pardini, 2002). In addition, Eccles et al. (1991) found that many schools with 6-8 grade configurations do not follow the middle school philosophy.

Instead, they look and operate just like the old departmentalized junior high schools they replaced, with very little implementation of the developmentally responsive practices that are a foundation of the middle school redesign.

Effects of School-to-School Transitions

Some researchers suggest that transitions, rather than grade span, may be the primary area of concern for middle level students (Alspaugh, 1995; Lucas & Valentine, 2005; Schiller, 1999; Simmons & Blyth, 1987). The smaller the grade span within a school, the more transitions students must make between kindergarten and twelfth grade, which can be a stressor for some children (Paglin & Fager, 1997). Toepfer (1990a) found that one- or two-grade level centers offer a fragmented educational experience for students. In early adolescence, children are dealing with the changes in their body as well as transitioning to a new school. Students in this age range may place a higher priority on socialization than on their studies in school. In addition, students may begin to experiment without new groups of friends and with their own image, from the way they dress to the color of their hair (Daniels, 2005).

Understanding middle school students' social, psychological, and developmental needs is essential before beginning to work on their academic needs (Daniels, 2005; Lipsitz, 1984). Rapid physical, social and emotional changes mean students need more flexible learning modalities which balance structure and choice (Ecker, 2002). Jenkins and McEwin (1992) indicated that programs and practices in elementary schools are focused on childhood needs, rather than the needs of young adolescents. The goal of middle school is to focus on the unique needs of young adolescents (George & Oldaker, 1985/1986). The challenge of schools serving early adolescents is to develop a program

based on needs and characteristics of an incredibly diverse and varied population (NMSA, 1995).

Some theorists have suggested that declines in student motivation may be a result of adolescents coping with two major transitions: pubertal change and school change (Eccles et al., 1991, p. 522). Simmons and Blyth (1987) argued that the effects of simultaneous multiple life changes are negative and are more prolonged, especially for females. Their research shows that girls suffer losses in self-esteem when the numbers of life change events to which they are exposed increases. Both males and females experience declines in grade point average and extracurricular participation with increased numbers of transitions.

Alspaugh (1995) found that the year the student transitioned to another school, regardless of the year, achievement for that student dropped. However, he reported that students tend to recover from transition losses the year after the transition. In a study of sixth grade students in North Carolina, researchers found that behavior problems increased and academic achievement declined the first year after a transition from one school to another, even after adjusting for economic and demographic factors (Cook et al., 2007). In a similar study of 303 students in rural South Dakota, the researcher compared academic achievement of students in their last year of elementary school with their first year of middle school (Johnson, D., 2002). Using scores from the SAT9 and report card grades, the study found that SAT9 scores declined in both math and reading after the transition from fifth to sixth grade.

Transitions may have other negative effects on student success. Rudolph, Lambert, Clark, and Kurlakowsky (2001) studied the effects of school to school

transitions on two self-regulatory beliefs in early adolescents. In the study, 329 students and their teachers from Midwestern school districts were surveyed in the spring of their fifth grade year, then again in the fall of sixth grade. 187 of the students transitioned from elementary to middle school after fifth grade, with the remaining 142 students staying in the same school for sixth grade. Feelings of lack of influence over their own success in school were more prevalent in the group of students that transitioned to middle school for sixth grade.

In a study of 45 schools in Missouri, Howley (2002) compared the grade level in which students transitioned to high school with dropout rates and found that schools that housed students from grades K-12 that had no school-to-school transitions experienced the lowest dropout rates. In addition, increased numbers of transition were correlated with higher dropout rates. Brown (2004) studied school districts in Ohio in which all students within the district experience the same number of transitions. The study compared the number of school to school transitions with dropout rate, graduation rate, and aggregate pass rates on the Ohio Proficiency Test (OPT). The research found that the number of transitions is a significant predictor for graduation rates and ninth grade aggregate achievement on the OPT.

Simmons and Blyth (1987) offer a hypothesis regarding the effects of transitions on early adolescents that appears to have some substance. Their *Developmental Readiness Hypothesis* states that a change in environment will have negative effects if it occurs when children lack the maturity to cope with the change. Simmons and Blyth found that the negative effects can be prolonged, with the greatest loss to the self-esteem of females.

Toepfer (1990b) suggested that total educational effectiveness is enhanced when there is a bridge between elementary, middle and high school. The stress of transitioning between schools can be lessened by articulation practices such as field trips to the new school, presentations and orientations for parents and students, and faculty communication between feeder patterns (Grolnick, Kurowski, Dunlap & Hevey, 2000; MacIver & Epstein, 1993; Paglin & Fager, 1997). Research seems to bear out this theory. In a study of 56 high schools in Florida and Georgia, Hertzog and Morgan (1999) surveyed students about what types of transition programs they were offered. Schools with two or fewer transitional practices had significantly high ninth grade dropout and attrition rates than those that implemented three or more practices.

In a study of urban students transitioning to the ninth grade, one factor that distinguished students that made a successful transition to high school from students who were not as successful was the ability the student to develop a peer group that supported their academic goals. High ability, low income, urban minority youth participating in the Youth Scholars Program through Ohio State University identified three coping strategies for transitioning, which included individual strategies such as “staying focused,” academic strategies like “keeping up with homework”, and social strategies such as “hanging out with the right people” (Newman, Lohman, Newman, Myers, & Smith, 2000).

Some of the responsive practices recommended by middle level experts, such as teaming, common planning, and advisory, are designed to help ease the transition into middle school (Toepfer, 1990b). Interestingly, some of the practices advocated in the high school reform used to ease the transition of students from middle school to high

school are the same practices seen as exemplary middle schools, and include “houses” or teams for ninth grade students and student-teacher advisory (Hertzog & Morgan, 1999). Shoffner and Williamson (2000) have suggested a number of activities that smooth the transition to middle school, including summer bridge activities, interactions between staff in feeder patterns, buddy systems between older and younger students, and classroom guidance activities.

Characteristics of the K-8 Model for Middle Level Students

Although not a new idea, many school districts are beginning to believe that middle level students can be better served in a K-8 school design (Howley, 2002). The K-8 model is considered the norm in European countries that consistently outperform the United States (Pardini, 2002). In fact, the United States is “virtually the only nation where elementary school students spend time in a middle or junior high school before entering high school” (p. 8). The K-8 model has always been the norm for private schools, but now this trend is beginning to catch on in the public school sector (Paglin & Fager, 1997).

Another variation of this configuration is a modified K-8 which offers multiple schools within a single building, each with their own course offerings, bell schedules, and unique programs (Toepfer, 1990b). Hough (1995) called this design the “elemiddle” school, which includes both elementary and middle grades. However, students in the middle grades have special programs, courses, and teachers with specialized training in working with early adolescents.

In a study of over 100 middle-level school administrators, McEwin, Dickinson, and Jacobson (2004) found that middle grade students in K-8 schools are more likely to have a comprehensive core curriculum than middle schools or junior high schools. For

example, K-8 schools are more likely to offer reading courses and instruction in basic skills. Of the schools surveyed, students in the K-8 schools were scheduled into core academic instruction, such as reading and math, an average of 30 minutes more per day than their peers in 6-8 middle schools. In addition, K-8 schools are more likely to offer independent study opportunities and use more flexible grouping practices. Schools with the K-8 grade configuration are also more likely to have a variety of organizational plans within the school, such as self-contained classes and departmentalization of classes according to student need. The most common organizational design includes self-contained or partially self-contained sixth grade students and more departmentalized seventh and eighth grade classes.

Advocates for the K-8 school design have theorized that there may be additional benefits to the K-8 grade configuration. The K-8 structure may foster more supportive interpersonal relationships (Offenberg, 2001). Some school district administrators believe that by shifting to K-8 schools, fewer students will be lost in the shuffle of the larger middle schools (Pardini, 2002). Others have reported that K-8 schools are perceived as safer than schools that house middle school students (Waugh, 2004; Weiss & Kipnes, 2006). Some researchers have suggested that the smaller school size of K-8 may actually be an advantage to implementing several developmentally appropriate practices, such as teaming and heterogeneous grouping (Coladarci & Hancock, 2002a; Hough, 2005; Offenberg, 2001; Yakimowski & Connolly, 2001).

Another stated advantage of K-8 schools is that students have opportunities for leadership roles for longer periods of time, since they stay in the same school longer (Simmons & Blyth, 1987). In addition, the increased number of years in one school

provides a longer period of time for relationships between teachers, parents, and students to form (Offenberg, 2001). Alspaugh (1998) believed that the social structure and bonding that occurs when students are grouped together for many years may be more important than originally understood. Simmons and Blyth (1987) reported that students in K-8 schools have the added benefit of not facing the transition of moving to a new school until they are more developmentally suited for the change. In an analysis of students remaining in K-8 schools compared to students shifting to a middle school, the researchers found that students in K-8 schools had higher levels of social engagement, better attitudes toward school, and higher levels of self-esteem.

On the other hand, K-8 schools have been criticized for operating just like elementary schools, with no special attention given to the unique needs of students in grades 6 through 8 (Jenkins & McEwin, 1992). Ecker (2002) suggested that there may be a perception that K-8 schools lack the rigor needed for middle aged children. For example, algebra is taught less frequently in K-8 schools, because elementary teachers are rarely trained or certified to teach more advanced subjects. Additionally, K-8 schools are usually smaller in size than consolidated middle schools which typically draw students from a number of elementary feeder schools. With fewer students, K-8 schools often have proportionally fewer resources which can result in reduced offerings in exploratory classes, gifted and accelerated courses. Reduced resources can also mean limited support for students with disabilities, and fewer extracurricular activities (Beane & Lipka, 2006).

Despite the critics, advocates for the K-8 school design firmly believe it is the next big idea in school reform. Communities that are making the shift from middle

schools to the K-8 configuration offer a variety of reasons for the change. William Maloney, Superintendent for Colorado's Department of Education, is convinced that a shift to K-8 can dramatically improve schools for a relatively low cost (Pardini, 2002). In Milwaukee, where the public school district has expanded the number of K-8 schools by 19 over a two-year period, district personnel stated they were moving to a K-8 design to put schools back in the communities where the students live (Cook & Bloom, 2007; Gewertz, 2004). They argue that the new grade configuration will save on transportation costs and better anchor the schools in the communities. Herman (2004) reported that K-8 schools can be more cost efficient because of reduced transportation expenses and from overhead saved from operating one building rather than two.

Cost savings was not the impetus for the switch to K-8 schools in Cleveland and Cincinnati, where the Facilities Master Plan includes over $1 billion for the conversion (DeJong & Craig, 2002). Reasons for the shift in these two large Ohio school districts included frustration with the high rates of absenteeism and suspension, overcrowded classes in the middle schools, and parent dissatisfaction (OPPAGA, 2005).

Although the K-8 movement seems to be gaining steam in many urban areas, some researchers are concerned about the locations of the K-8s within the districts. For example, Gewertz (2004) found that the wealthier neighborhoods in Baltimore have converted more schools to the K-8 design than in more impoverished areas of the city. Balfanz et al. (2002) noted a similar trend in Philadelphia. In Cleveland, where it takes a 75% majority of parent votes to convert to K-8, parent participation may be easier to garner in more affluent areas.

In Miami-Dade, the public school district has converted 26 schools to the K-8 configuration, with six conversions occurring the past two school years. When comparing school free and reduced-price lunch rates, there appears to be a marked disparity between K-8 schools and traditional middle schools. For example, in comparing the percentage of schools with more than half of the students on free or reduced-price lunch, 92% of the middle schools meet the qualification, in contrast to only 54% of the K-8 schools. To further exacerbate the disparity, five of the six new K-8 schools that converted or opened from 2008 to 2010 had less than half of the students on free or reduced-priced lunch (Florida Department of Education (FLDOE), 2011a). Several researchers have warned that this continued trend could lead to greater segregation in schools (Beane & Lipka, 2006; Gewertz, 2004).

In a case study of five failed K-8 school conversions in Philadelphia, Look (2002b) concluded that several factors must be present when attempting to successfully move to a new grade configuration as part of a district-wide reform agenda. First, the district and affected schools must have consistent leadership who are committed to the new design. Secondly, there must be substantial stakeholder investment in the effected community. Finally, the current policies and practices must be revised to reflect the newly designed grade configurations.

Student Achievement and Grade Configuration

Because a number of urban districts are adopting the K-8 model, expending great financial and human resources in the process, it is important to understand what the research says regarding the relationship between grade configuration and student achievement. There are a number of studies that attempt to determine this relationship, particularly for schools that educate middle level learners.

In the 1980s, the biggest debate regarding grade configuration was whether sixth grade students belonged in the elementary school or the middle/junior high school. As the middle school movement gained momentum, much of the research focused on middle schools in comparison to junior high schools. Because K-8 schools were so few in number and largely consisted of rural, private, or parochial settings, the student achievement differences that existed within those schools could be largely dismissed because the student bodies were dissimilar to most other schools serving early adolescents.

In 1995, the Third International Mathematics and Science Study revealed that fourth graders from the United States were doing well in mathematics against their counterparts from other countries, but the performance of our eighth grade students was well below the international standard (Peak, 1996). Researchers gained a new interest in finding out why student achievement in the elementary schools was significantly better than student achievement in middle and high school (Wren, 2003).

With the advent of the “No Child Left Behind” Act and the era of accountability, there has been a renewed interest in determining the relationship between grade configuration and student achievement, as more districts began to invest in reconfiguration to the K-8 model. This is a result of heightened accountability for student achievement and a scarcity of financial resources for schools. Administrators at both the district and school level are grasping at solutions to increase student performance in the face of drastic budget cuts.

The majority of studies that attempt to determine the relationship between grade configuration and student achievement have found no effect or little effect, particularly

after controlling for demographic or school-level factors. The following sections summarize the findings of those studies.

Grade Configuration Studies with No or Little Effects

In 1986, Sailor wrote a review of the research concerning the effects of grade configuration on student achievement. At that time, he reported that the research in the area of grade configuration was “muddled” and there was no evidence that grade configuration had any effect on the student achievement of sixth grade students (p. 7). Instead, Sailor suggested that any effects of grade configuration were small compared with other factors, such as school climate and after-school supports, and stated that school leadership should focus their attention on “what is occurring within the building, rather than on the grade span housed there” (p.11).

In a national study of eighth grade students, researchers studied the effects of grade configuration on student achievement, controlling for a number of factors (Eccles et al., 1991). Overall, students in K-8 schools performed better academically than their 6-8 counterparts. When controlling for socioeconomic status, however, the researchers found that grade configuration had no effect on student academic performance. School size had some effect on academic achievement, with students in smaller schools outperforming students in larger schools.

Vaccaro (2000) compared 119 schools in eastern Tennessee in a study of academic achievement in K-8 schools and middle schools over a three-year period. Using student achievement data in reading, language, math, science, and social studies from 57 middle schools and 62 K-8 schools, the researchers determined that there was no one best grade configuration for middle level learners. For example, middle school students outperformed K-8s in seventh grade math and science, while K-8 schools

showed greater achievement in sixth and eighth grade reading. In all areas, there appeared to be no significant differences between the two configurations. The researcher indicated that there may factors other than grade configuration that have a greater impact on student achievement, such poverty levels and teacher experience.

In response to what they deemed the abysmal performance of their middle schools, Philadelphia embarked on a full-scale conversion to a K-8 design as part of the district's Secondary Education Movement Strategic Plan. Using data from the Philadelphia Education Longitudinal Study, Weiss and Kipnes (2006) studied both academic and nonacademic outcomes from a random sample of 1,483 students from 45 Philadelphia public schools after their eighth grade year. The sample included students who had attended both K-8 and middle schools. The researchers found little difference in student performance based on school type. The only significant differences found were a greater sense of anonymity and threat for students who attended middle schools.

A year later, Byrnes and Ruby (2007) also compared eighth grade student achievement in Philadelphia Public Schools in a study for Johns Hopkins Center for Social Organization of Schools. In this study, the researchers divided the K-8 schools into cohorts based upon the number of years they had been reconfigured. Schools were classified as "Old K-8s" for schools that were more than 5 years old, and "New K-8s" for schools that had been converted in the last one to five years. Using data from 40,883 eighth grade students in 95 schools, and controlling for population demographics and school characteristics, the researchers compared math and reading achievement for students in the old K-8s, the new K-8s, and students in the middle school configuration.

Overall, students in the old K-8 schools had significantly higher performance in both reading and math than students in the middle schools, but the researchers also found that the same setting had significantly fewer minority and high-poverty students. In addition, the old K-8 schools had much small average grade sizes, lower rates of student mobility, less teacher mobility, and a greater percentage of certified teachers. Therefore, researchers concluded that the older K-8 schools served a significantly different population of students than those in the middle schools. In comparing the newer K-8s with middle school performance, the researchers found fewer differences. The new K-8 had lower levels of student achievement and teachers who were less experienced than the middle school cohort. The new K-8s had smaller grade sizes than middle schools, but a greater percentage of minority students. After controlling for population demographics, the researchers found no significant differences in math achievement between the new K-8s and middle schools, and only slightly higher levels of reading achievement in the new K-8s. Old K-8s had the highest overall academic achievement in both reading and math. The most interesting finding is that after controlling for grade level size, the researchers found no differences between old K-8s, new K-8s and middle schools in terms of academic achievement, which suggests that academic achievement has more to do with grade level size than grade level configuration.

In a replication of Vaccaro's 2000 study, Blair (2007) conducted a comparative analysis of 160 middle and K-8 schools in 4 counties in middle Tennessee. Using Terra Nova scores for students in grades six through eight, Blair concluded that although there were differences in achievement, no one grade configuration had a clear

advantage regarding student achievement overall. For example, in language arts achievement, sixth grade students had better performance in K-8 schools, while middle school students had the edge by eighth grade, and overall, there were no significant differences in the total group in language arts achievement. Similar findings were reported in mathematics, science, and social studies, with inconsistent advantages at certain grade levels, with no significant overall effect.

Dove, Pearson, and Hooper (2010) studied the relationship between grade span configuration and academic achievement using data from 281 Arkansas schools with sixth grade students that had maintained their current grade configuration for the past three years. Using mathematics and reading scores from the Arkansas Benchmark 6 Examination, the researchers compared aggregate school-level scores and found no relationship between grade span configuration and academic achievement for sixth grade students.

Grade Configuration Studies with Some Effects

Most studies comparing student academic achievement during the 1980s showed a mixed bag of results between grade configurations for early adolescents. For example, in 1983, 62% of schools configured to a 6-8 grade span reported consistent academic improvement (George & Oldaker, 1985/1986). In a study of 18 schools in New York City, Moore (1984) compared reading achievement in K-8 schools to middle schools with similar racial and socioeconomic status demographics. He found that seventh and eighth grade students in K-8 schools had higher reading achievement scores when compared to students in middle schools. Similarly, using the Pennsylvania Educational Quality Assessment for students in 330 schools in Pennsylvania, Becker (1987) found that the elementary setting is most advantageous for middle level students

from low socioeconomic backgrounds, but had no effect on other groups, even when controlling for other factors such as ability grouping and enrollment per grade level.

In 1992, researchers compared academic achievement of students in schools with K-8, K-9 or 3-8 grade configurations with those that were configured 4-8, 5-8, or 6-8 (Wihry et al., 1992). In the study, the performance of eighth graders in 163 Maine schools was compared by grade configuration. After controlling for poverty and parent educational attainment, the researchers found that student achievement on the Maine Educational Assessment was from one-third to a full standard deviation higher in the schools with the larger grade spans than those configured around the middle grades.

A comparison of four enrollment groups in K-8 and K-12 rural Missouri school districts revealed sixth and eighth grade achievement levels higher than the state average (Alspaugh, 1995; Alspaugh & Harting, 1995). In these studies, it is difficult to discern whether the achievement of K-8 schools should be attributed to the rural nature of the district, rather than the configuration of the school (Alspaugh, 1995).

Tucker and Andrada (1997) found in a survey of schools in Connecticut, schools that know they will be accountable for sixth grade results, such as K-6 and K-8 schools, show consistently better sixth grade results than 6-8 configured schools on the *Connecticut Mastery Test*. The researchers attributed the higher performance to heightened feelings of accountability of teachers to their colleagues within the school and better fifth grade preparation.

In a study of student academic performance in rural schools in Louisiana, Franklin and Glascock (1998) studied achievement scores of sixth and seventh grade students in schools with elementary (grades K-6/7), middle/junior high (grades 6/7-8/9),

secondary (grades 7/8/9-12), and unit (K-12) grade configurations. Sixth and seventh grade students performed equally well in an elementary configuration as in a K-12 unit configuration, and actually performed better than the sixth and seventh graders in a middle school setting. The researchers suggested that the lower achievement levels in middle school are due to a more fragmented school experience due to the additional transition. The researchers further stated that in many cases, the middle school design was created for fiscal and administrative purposes, rather than to meet the social and academic needs of early adolescents.

Prior to the last decade, most K-8 schools were primarily located in rural areas (Epstein, 1990). In an attempt to study grade configuration on a more urban area, Offenberg (2001) conducted a comparison of student achievement in Philadelphia public schools, which had more recently converted some of its urban schools to a K-8 model. He found that students in the K-8 schools had better grade point averages and scored significantly higher on standardized tests than students in the middle school configuration, even when the data were controlled for poverty and race.

Wren (2003) studied the effects of student transition on student achievement in a larger, urban inner-city school district in the Midwest, with a 91% minority rate. The researcher sorted student achievement scores from the Michigan Education Assessment Program (MEAP) test from 232 schools by the number of transitions each student had experienced. Students in elementary, K-8, or K-12 schools were coded as having only one transition (home to school), middle school students were coded with two transitions (home to elementary to middle school), and high school students were coded with three transitions. The researcher found that the number of transitions was

negatively associated with student achievement, and that achievement scores for elementary students were highest, regardless of the grade configuration. In her discussion, the researcher hypothesized that when students come to one large middle school from multiple elementary schools, there is more loss of achievement than when one elementary feeds directly into one middle school.

Freeman (2005) used aggregated school achievement and attendance data, along with teacher and principal interviews to study the effect of grade configuration in North Carolina schools. Using all K-8, 6-8, and 7-9 configured schools in the state, Freeman found that K-8 schools had better attendance and student achievement on the North Carolina end-of-grade tests in reading and mathematics. The researcher credited fewer school-to-school transitions, greater continuity, and higher levels of personal support of the K-8 structure for the differences in attendance and achievement.

In a follow-up study of the conversion of middle schools to K-8 schools in Miami-Dade County Public Schools, Abella (2005) was interested in the long-term effects of grade configuration on student achievement. In the initial research for the first five K-8 conversion schools after the first year of implementation, researchers found that sixth graders in the K-8 schools outperformed nearby middle schools in student achievement, had better attendance, and fewer out of school suspensions. In studying the same students three years later, however, Abella found that by the eighth or ninth grade, those differences in student achievement levels had disappeared.

There is a growing body of research that suggests that the transition to middle school may be particularly harmful to minority and high poverty students. Black (2009) researched the difference in student achievement by the configuration of grades for

Alabama sixth grade students. In addition, he studied whether the differences varied by gender, ethnicity, and socioeconomic status. After researching data from 242 schools, the researcher concluded there were no differences in student achievement based on grade-level configuration or by gender and grade configuration combined. One interesting finding within the research was that black students and high-poverty students in K-8 schools had higher achievement scores in math than their middle school peers.

In New York City, Rockoff and Lockwood (2010) followed students from grades three to eight to determine the effects of grade configuration on early adolescents. Some of the students transitioned to middle school, while others remained in the same K-8 school. The researchers found that the year the students transitioned to middle school, whether in the sixth or seventh grade, they experienced declines in both reading and mathematics achievement. Students who were already performing below grade level fared the worst in the transition, experiencing drops that were 50% greater than transitioning high-achieving students during the first year alone, with a cumulative deficit of 200% in a three-year period over high-achieving students making the same transition. The researchers found no differences in funding or class size between K-8 and middle schools; however, there was a significant difference in school size, with middle schools much larger than K-8s.

Summary of Research Findings

There are no consistent findings regarding the relationship between grade configuration and student achievement. Many of the studies that do report differences also report other factors that may influence the outcomes, such as school size, class size, or demographic differences between the schools. Nearly every researcher indicated that any differences that did exist may have more to do with the practices

within the building, which may or may not be a by-product of the grade configuration within the school. Urban districts that are converting to a K-8 design are doing so without much long-term evidence to suggest the conversions will produce the desired effects on student achievement.

Other Student Achievement Factors for Early Adolescents

In addition to grade configuration, there are a variety of other factors that may have an effect on student achievement for early adolescents. Some of the factors that have been pointed to by researchers include the following: (a) socioeconomic factors, (b) school size, (c) academic rigor, and (d) extracurricular activities.

Socioeconomic Factors

The largest body of research linked to student performance at all grade levels is socioeconomic status. A number of research studies have shown that a school's poverty index is the strongest predictor of achievement test scores (Beaton, Mullis, Martin, Gonzalez, Kelly, & Smith,1996; Bracey, 1997; Schmidt, McKnight, Jakwerth, Cogan, & Houang 1999). Barth (2001) reported that significant differences in middle level student achievement were linked to socioeconomic status, not grade span configuration. In a study of fourteen southern states, researchers found that low-income and minority students are less likely to attend schools with highly qualified teachers, and teachers of high-poverty students tended to score lower on indicators of instructional effectiveness (Cooney & Bottoms, 2003). Goldschmidt and Wang (1999) have found that dropout rates are higher in schools with a greater number of students on free or reduce-priced lunches.

Using data from the National Education Longitudinal Study of 1988, Hough and Sills-Briegel (1997) studied 40 consolidated schools matched with 40 community-based

schools throughout the United States. In their research, they found that socioeconomic status, not school type, was the most significant factor in determining student achievement. Similarly, in a study of reading and mathematics achievement in 3,856 Illinois public schools, researchers found four relationships predictive of student achievement, with the poverty and minority rate having the strongest predictive value (Sutton & Soderstrom, 1999).

In a study of 73 high schools in New Hampshire, researchers examined math and reading achievement scores, post-secondary aspirations, attendance, and percent of students taking college entrance exams in relation to district socioeconomic factors, including district unemployment rate, percent of adults with less than a bachelor's degree, and percent of students on free or reduced-price lunch. The researchers found that socioeconomic factors account for much of the variation in school-level outcomes of student achievement (Toukoushian & Taylor, 2005).

School Size

Combination schools such as K-8, K-12, and 7-12 tend to be smaller in size than junior highs and middle schools (Ecker, 2002; Renchler, 2002). Of all the configurations for middle level students, junior high schools tend to have the largest enrollment, followed by middle schools (Eccles et al., 1991; Viadero, 1995). Howley (2002) has found that schools with the largest enrollments tend to have the fewest number of grade levels within the school.

Bickel and Howley (2000) studied the joint influence of school size and district size with student performance of eighth and eleventh grade students in Georgia. Using data from 367 middle schools and 298 high schools, the researchers found that both school size and district size was predictive of student achievement. The researchers

concluded that both small school size and small district size is more advantageous for achievement of low socioeconomic students. In Texas, smaller schools with broad grade spans have better academic achievement scores and are more cost effective than larger schools (Bickel, Howley, Williams, & Glascock, 2001).

In a study of 140 middle schools participating in the Michigan Middle Start Initiative, Mertens, Flowers, and Mullhall (2001) collected data from 2,400 teachers and 30,000 students. Schools in the study were divided into three size categories: (a) less than 500 students, (b) 500-749 students, and (c) more than 750 students. The researchers found that both categories of schools with fewer than 750 students had greater parental involvement, more common planning, and better instructional practices, which may lead to greater student achievement.

The small grade level enrollment in combination schools such as K-8 and K-12 configurations make it impractical to implement some effective middle level practices, such as common planning and interdisciplinary teams of teachers (Offenberg, 2001; Epstein, 1990). As enrollments by grade level increase, schools experience more opportunities for grouping within grade levels (Epstein, 1990; Epstein & MacIver, 1990; Paglin & Fager, 1997). On the other hand, schools with a larger span of grades have greater opportunities for cross-age grouping and parent involvement for a greater length of time. However, fewer classrooms per grade make it harder to match students to a teaching style that best suits their particular learning needs or to separate kids from each other when needed (Paglin & Fager, 1997).

In rural areas, many schools districts are finding that consolidation may not be the answer to their financial worries. Students in consolidated schools find a loss of

student achievement, longer bus rides to school, reduced parental involvement, declining extracurricular participation, and less sense of ownership (Bickel, et al., 2001).

Researchers are not advocating the abolishment of large schools, but rather the regrouping of teachers and students into smaller learning communities within those schools (Dunne, 2001; MacIver & Epstein, 1993). Researchers suggest that large middle schools need to be made smaller to create better student-adult relationships and to build longer lasting relationships with parents (Hough, 2005; Offenberg, 2001). The number of students included at each grade level alone does not determine whether instructional approaches are responsive to early adolescents (MacIver & Epstein, 1993; Dunne, 2001).

Academic Rigor

Middle schools have been accused of emphasizing social skills at the expense of academic rigor. For example, Lounsbury and Johnston (1988) stated that sixth grade students are rarely challenged to think critically. Others have said that students in middle school are not offered enough challenging academic courses (MacIver & Epstein, 1993). Toepfer (1990b) advocates a curriculum rich in problem-solving for middle level students. Middle level students should be made aware of the complex issues that will affect our society, and the middle school curriculum should include topics of future concerns.

With the high-stakes testing that accompanies *No Child Left Behind* legislation, teachers are placing increased emphasis on high-accountability areas, in particular reading and mathematics (Lounsbury & Vars, 2003). Even before the new law, however, MacIver and Epstein (1993) found that most middle schools emphasized passive drill and practice over other more complex and varied cognitive tasks. The

researchers also found that average- to upper-socioeconomic status students were more frequently offered advanced classes and richer instructional approaches than students from lower socioeconomic status backgrounds.

There is a growing body of research that suggests placing students in rigorous courses has a positive effect on student achievement, particularly in mathematics. For example, in a study of over 3,100 eighth grade students, Cooney and Bottoms (2002) found that students placed in a higher level math class than their ability-like peers had a lower failure rate in mathematics. In addition, those same students are more likely to take more advanced mathematics courses in high school. Furthermore, students who take algebra in eighth or ninth grade are far more likely to take calculus in high school and enroll in postsecondary education. Gamoran and Hannigan (2000) also found that exposure to algebra in middle school produces as much achievement gains in low performing students as it does their high-achieving peers. Conversely, Hoffer (1992) found that low-performing math students who are enrolled in remedial or lower-level math classes do not make significant gains, and the remedial coursework is not beneficial.

The implementation of rigorous performance standards may also have a positive effect on student achievement. For example, in a study of students enrolled in an earth-science class in New York, students were told they needed to master 100% of the course competencies on the New York Regents Exam in order to receive credit for the course. Students were given specific information about each of the competencies. As a result of the stated expectations for learning, 71 out of 72 students met the goal (Nave, Miech, & Mosteller, 2000).

Lee et al. (1999) studied the effects of social supports and academic press on the achievement levels of sixth and eighth grade students in the Chicago Public Schools. Academic press is the stress placed on rigor and accountability, while social supports is the degree that relationships are formed among adults and students within the schools. The study examined Iowa Tests of Basic Skills scores of over 28,000 students and survey data from over 5,000 teachers. The researchers found that high levels of academic press alone resulted in greater achievement gains, and that academic press combined with social support resulted in the greatest achievement gains. The authors stressed that academic stress provides pressure on both teachers and students to conform to specific standards. In addition, it provides specific direction for student work, letting both teachers and students know what they need to accomplish. Finally, academic press creates built-in incentives to motivate teachers and students.

Extracurricular Activities

There is a modest body of research that suggests that students who are involved in academic, athletic, or recreational extracurricular activities have higher academic achievement. For example, Schrieber and Chambers (2002) studied over 8,000 students in eighth and tenth grade as part of the National Education Longitudinal Study (NELS) of 1988. Extracurricular academic pursuits were more highly correlated with academic achievement. It is not clear whether extracurricular activities are a causal factor for increased academic achievement, or if academically successful students are more likely to participate in extracurricular activities.

Grade Configuration and Other School Factors

Researchers have found that the grade configuration of a school may have an effect on factors other than just student achievement. The affected areas include: (a) student behavior, (b) self-esteem, (c) parental involvement, (d) attendance, and (e) teacher placement.

Student Behavior

Early adolescence is typically when a trend of poor behavior and diminishing academic achievement in school begins (Eccles et al., 1991). In a survey of 170 students majoring in education, only 9% indicated they were interested in middle grades education because of perceived disciplinary problems and perceptions about the attitudes of early adolescents (Carter & Carter, 2000).

Some research suggests that peer influence for middle level learners may not be as strong as previously thought. For example, Berndt, Laychak, and Park conducted an experimental study to determine the effects of peer influence on academic achievement motivation (1990). In the study, 118 students were matched with a close friend. Half of the pairs were assigned to an experimental group, and the remaining pairs were assigned to a control group. All students were independently administered a questionnaire that required them to choose between two courses of action when posed with a scenario related to academic motivation. For example, students were asked to decide if they would attend a rock concert after they found out that an important exam had been scheduled for the following morning. After the first round of questionnaires, the matched pairs were brought together for a discussion. The experimental group discussed their responses to the questionnaire, while the control group had a discussion unrelated to school topics. After the matched-pair discussions, the students were once

again administered the questionnaire. Although the experimental group did shift their responses to become more alike, there was not a dramatic change. More importantly, of the changes in decisions that did occur, friends tended to influence the responses in a more positive direction.

In earlier research, George and Oldaker (1985/1986) found the middle school reorganization had a positive result on student behavior. In the study, the researchers identified a preliminary list of prospective exemplary middle schools using the 1982 Study of Well-Disciplined Schools sponsored by Phi Delta Kappa and the 1983 Department of Education National Secondary School Recognition Program. The list was narrowed by a panel of ten experts in middle level education who researched each school to determine the implementation of model middle school practices. In all, 130 middle schools that were deemed exemplary by fidelity to program implementation were included in the study. Participants, including teachers and administrators, from each school were administered surveys. Of the respondents, 80% reported a significant reduction in referrals and suspensions after implementing the middle school model. In addition, 90% of the teachers reported a greater confidence in maintaining discipline in the middle schools. Teaming and common planning were also linked with most consistent procedures for handling student class disruptions.

As cited in a previous section, Abella (2005) conducted a longitudinal study in Miami-Dade, where some of the public schools had reconfigured to a K-8 design. Students in the K-8 design received significantly fewer out-of-school suspensions during the middle years, with the most pronounced difference in the sixth grade. However, by the time both groups reached the ninth grade, there were no significant differences in

out-of-school suspension rates between the two groups. Similarly, Weiss and Kipnes (2006) found no significant difference in suspension rates of eighth grade students attending urban K-8 schools compared to their middle school peers.

Cook et al. (2007) found different results in a study of sixth grade students in North Carolina. In a sub-sample of 342 public schools that served sixth grade students, the researchers found that sixth graders in middle schools were more likely to be cited for disciplinary infractions that sixth grade students in elementary schools. Franklin and Glascock (1998) also reported decreased suspension rates for Louisiana sixth and seventh grade students in K-8 configured schools as compared to their middle school peers.

Whether perceived or real, reducing behavioral disruptions is one of the frequently cited reasons school districts give for converting to the K-8 model. In Cleveland, Ohio, Superintendent Barbara Byrd-Bennett stated that the shift from middle schools to the K-8 model resulted from middle schools that had become “too big and too unsafe” (Reeves, 2005, p. 17). Former Washington, D.C. Superintendent Michelle Rhee cited fewer disciplinary problems as one of the major reasons for her controversial overhaul of the D.C. public school system, which included school closures and K-8 consolidations (Turque, 2008). Deputy Superintendent Robert Alfaro said that, while San Antonio schools were converted to K-8s for academic reasons, one of the positive outcomes has been reduced disciplinary infractions (Reeves, 2005).

Self Esteem

Understanding middle school students’ social, psychological, and developmental needs is essential before beginning to work on their academic needs (Daniels, 2005; Lipsitz, 1984). Rapid physical, social and emotional changes mean students need more

flexible learning modalities which balance structure and choice (Ecker, 2002). Hough (1989, 1995) maintained that it is during this time period that giant gaps begin to emerge between children in terms of maturity. The developmental diversity of students in this age group makes it difficult to meet the needs of all students (NMSA, 1982, 1995).

Early adolescence is a very important stage because it is during this time that children begin to determine their behavior as adults. Self-concept, learning, interests, skills and values are all forming during this stage of development (National Middle School Association, 1995; NMSA & NAESP, 2000). For example, early adolescence is characterized by more abstract thinking, concern over sexual relationships, a desire for autonomy from adult control, and a greater concern for peer relationships (Eccles et al., 1991). It is also during this time that young adolescents begin to transition from an egocentric point of view to a more group-centered way of thinking (Daniels, 2005).

In terms of emotional development, early adolescence is a time when children begin to have feelings of diminished security (Lounsbury & Johnston, 1988). At this age, students will work hard to demonstrate their autonomy, but are still very dependent on significant adults. Early adolescents are very emotional and their social interactions greatly affect their school behavior. Most students in middle schools are very self-conscious, sensitive, and vulnerable. Conflicting messages they receive from family, friends, and even the media can be very confusing (George & Alexander, 1993).

Students moving into middle school have a great number of stressors, including concerns about navigating the school, adjustments to the organization of the school, and developing new relationships with peers (Wren, 2003). In earlier research,

Simmons and Blyth (1987) found some evidence that smaller K-8 schools are better for the self-esteem of early adolescents than larger junior high schools. Others believe that early adolescents have more opportunities for leadership roles, such as bus monitors and safety patrols, in K-8 schools (Pardini, 2002). Eccles et al. (1991) found that seventh grade students in junior high schools are actually given fewer opportunities for decision-making than when they were sixth grade students in the elementary school setting.

Positive modeling by adults in a school can influence middle school students' value decisions (Toepfer, 1990b). Since students in K-8 schools stay in the same school for a longer period of time, the likelihood is greater of forming stronger adult-student relationships (Pardini, 2002). In addition, school setting may have an effect on students' sense of belonging. In a research study of over 90,000 students in 132 schools included in the National Longitudinal Study of Adolescent Health, Anderman (2002) found that students in urban schools had a lower sense of belonging and students in suburban schools. When correlated with student achievement data, the researcher found that a greater sense of belonging is related to higher grade point averages.

Changing from a small protected elementary school to a large impersonal middle school can be detrimental to self-esteem, particularly for girls (Simmons & Blyth, 1987; Weiss & Kipnes, 2006). Sixth grade students in elementary settings have higher self-ratings of appearance, sports ability, intelligence, and popularity. Students report that they like their grade level better and they perceive themselves to be less anonymous. Girls suffer losses in self-esteem when the number of life events to which they are exposed increases. For example, when Simmons and Blyth compared the self-esteem

scores of girls transitioning to seventh grade, the girls in the K-8 group scored higher than those transitioning to junior high school. When both groups transitioned to high school, the results were even greater, with the K-8 girls significantly higher. The researchers conclude that the effects of multiple life changes simultaneously are negative and have prolonged effects, especially for females.

MacIver and Epstein (1993) found that the differences in self-esteem can be ameliorated by interdisciplinary teaming and teacher-student advisories. They found that these two practices had positive effects on student bonding to teachers and resulted in positive feelings toward the school. Similarly, there were fewer reports of depression, anxiety, and aggressive behavior in schools with the highest level of implementation of middle school structures (Felner et al., 1997).

Parent Involvement

Compared to the junior high school model, the middle school configuration seems to encourage more parental involvement. In earlier research, George and Oldaker (1985/1986) measured attendance at open house and parent conferences, numbers of volunteer hours, and participation in school-wide events and found increased levels of involvement in the middle school configuration. For the most part, however, parent participation falls off significantly in the middle grades (Viadero, 1995). Offenberg (2001) reports that middle school parents in 6-8 schools are less likely to come to the school because it is usually not as close to their home as the elementary school and because their children attend middle schools for only a few years.

In Cincinnati, school officials reconfigured to K-8 schools after they found that parents were enrolling their children in the district's public elementary schools, but leaving for private schools once they were of middle school age (Pardini, 2002). They

found that the parents in Cincinnati were more comfortable keeping their children closer to home in their neighborhood schools, but were uneasy sending their children to the larger middle school. As a side benefit, school officials found that parents were more inclined to remain involved when their children attended a K-8 school.

Attendance

Although the results are mixed, research seems to suggest that attendance is better in K-8 schools. In a study of Cleveland public schools, sixth graders in K-8 schools posted better attendance than the students still in the 6-8 grade configuration (Pardini, 2002). Across a four year period, Abella (2005) found that students in the K-8 grade configuration increased their absenteeism at a slower pace than did their peers in the middle school setting. Even when the groups of students entered high school, the students who had attended the K-8 schools had significantly lower absentee rates. Similar results of improved attendance for students attended K-8 schools were found in Louisiana, North Carolina, Milwaukee, and Miami (Abella, 2005; Cook & Bloom, 2005; Franklin & Glascock, 1998; Freeman, 2005). However, Weiss and Kipnes (2006) studied eighth grade attendance rates in a large urban school district and found no significant difference in attendance rates between the K-8 cohort and their middle school peers.

Middle Level Teachers

One of the most important elements of a successful school, regardless of the grade levels or school type, is the quality of the instructional staff. In fact, many researchers theorize that the qualifications of the staff within each type of school have more to do with any differences that exist than the grade configurations of the schools themselves (Gomez, 2010; McPartland et al., 1987; Mertens & Flowers, 2003a). In a

national random sample of 300 schools, McEwin & Alexander (1990) found that the most important difference in the educational value received by students is the quality of the teacher.

Unfortunately, for many middle level students, the quality of teaching may be lacking. K-8 schools may have the advantage in this area, since middle schools have a harder time recruiting and retaining quality professionals (Pardini, 2002). On the other hand, students in K-8 schools are unlikely to have qualified teachers in algebra, geometry, and world languages, because those schools tend to be smaller, requiring teachers with more general teaching certifications (Gomez, 2010, Juvonen, Le, Kaganoff, Augustine, & Constant, 2004, Yakimowski & Connolly, 2001).

Before changing grade configurations and school structures, school personnel must be properly prepared to work with early adolescents (NMSA, 1982, 1995). Reed, Dickinson and Cuozzo (2000) noted that there is very little explicit training for middle school teachers, despite the specific developmental needs of early adolescents. Some colleges and universities have instituted programs or departments specifically designed to train middle school teachers and many states now have licensure requirements to teach middle level students (Lounsbury & Vars, 2003).

In a survey of 209 members of the Tennessee Association of Middle Schools, Boren (1997) found that as a whole, the members favored a special endorsement for middle level educators. Professional organizations, such as the Association for Middle Level Educators, have been established to provide support for middle level educators, and both the National Association of Secondary School Principals and National

Association of Elementary School Principals include some emphasis on middle level education (Lounsbury & Vars, 2003).

Regarding ongoing professional development, Toepfer (1990b) found that staff development in middle schools was more likely to be provided based on teacher needs than in other grade configuration. K-8 principals were found to be “the least likely to endorse staff development in early adolescence and in specific strategies for the middle grades” (Epstein, 1990, pp. 442-443). In a more recent study, Schmitt (2004) found that middle school teachers were more likely to be highly engaged in professional development than teachers in K-8 or K-12 schools. Using classroom teacher observations matched with student scores, Miller (2008) found that math teachers with secondary certification had significantly higher levels of stage-environment fit in classroom management, climate and emotional support than those with elementary certification.

There is mounting evidence that subject area expertise may be a factor in student achievement for middle level learners. For example, in researching the sharp decline of eighth grade math scores on an internationally benchmarked exam, the TIMSS 1999 study reported that eighth grade students in the United States are less likely to have a teacher certified in math or math education than countries outperforming the U.S. (Mullis et al., 2000). In a study of 271 middle schools in Pennsylvania, Lutz (2007) found that eighth grade students who had teachers with secondary mathematics certification scored higher on the math portion of the Pennsylvania System of School Assessment (PSSA) than students who were instructed by teachers with elementary certification or had an alternative certification. In a meta-analysis of 5 studies, Sparks

(2004) found that student achievement gains in both math and reading were significantly higher when students were taught by fully certified teachers. Darling-Hammond (2000) similarly found a positive correlation between student math scores on the National Assessment of Educational Progress and instructors with both a subject area major and full state certification. This is important because sixth grade students in middle school are more likely to be instructed by subject area experts than their peers in K-8 configured schools (Bedard & Do, 2005).

While many middle schools use the team approach, middle school teachers are still overwhelmingly considered subject area purists (White, 1993). Pardini (2002) reports that secondary school trained teachers typically have a focus on content discipline and sometimes do not even know which teachers their students go to for other subjects. Teachers working in K-8 schools have usually been trained to teach elementary students and have a more student-centered approach to teaching. Additionally, K-8 teachers are more accustomed to teaming, planning, and working with the same groups of children. Mertens and Flowers (2003b) found that combining the effects of teacher certification with the practice of interdisciplinary teaming increased student achievement scores.

Teacher experience may also play a critical role in student achievement results. In a study of 2,000 students and over 200 middle school teachers, teacher experience was found to be the strongest predictor of overall student achievement scores (Johnson, T., 2005). Richardson (2008) studied teacher qualifications and mathematics achievement in Montgomery, and found that students who were instructed by teachers with five or more years experience had better gains than their less experienced

counterparts. In a study of 282 middle school mathematics teachers, Swan (2006) discovered that one-third were in their first year of teaching and only half had more than three years of experience. The researcher also found that teachers with higher seniority, advanced degrees, or math certification had better student performance. This is important because Pardini (2002) reported that K-8 schools have an easier time recruiting and retaining teachers. Thompson (2007) conducted a case study in one New York City school to research why some teachers left and others stayed. The researcher found in this case, teacher retention was related to perceived support from colleagues and sense of motivation teachers got from working with their students.

Summary

In 1995, the National Middle School Association issued the following charge in its landmark work, “This We Believe”:

> “Let us be clear. The main purpose of middle grades education is to promote young adolescents’ intellectual development” (p. 16).

This was not a move away from the social support structures emphasized in their earlier work; the education of early adolescents has always been the primary mission of this organization. In July of 2011, NMSA changed its name to the Association for Middle Level Education (AMLE) to more accurately reflect the composition of its membership. On their updated website, the organization explains, “Our organization supports those who work with kids in grades 5–9, regardless of the grade configurations of the schools that house them,” which acknowledges that middle schools are not uniquely capable of educating early adolescents.

The United States Department of Education (2003) listed four principles of education reform, including: (a) stronger accountability, (b) expanded flexibility and

more localized control, (c) more choices for parents, and (d) research-based instructional methods. The research-based practices that are associated with higher student achievement for middle level learners include a rigorous curriculum, challenging lessons and assignments, highly qualified teachers, and adequate resources for instruction (Haycock & Ames, 2000).

Early adolescents need both academic rigor and social supports. This combination is predictive of student achievement regardless of student demographics (Lee & Smith, 1995). This is supported by a recent study comparing the relationship between grade configuration and student achievement. Through classroom observation, focus groups, and data collection, the researcher found several common elements in schools with stable or increased student achievement, including consistent application of the following practices:

1. Rigorous and relevant curriculum and instruction;
2. Focused and directed professional development;
3. A learning community structure comprised of collaborative teams meeting together on a regular basis;
4. A student advisory program and strong transition plans for all students; and
5. A student-centered focus (Cooksley, 2010).

This research is consistent with that of Heller et al. (2003), who reported a list of research-based best practices to enhance academic achievement for students in the middle grades, which included: (a) an accelerated, rich curriculum, (b) high academic standards, (c) student engagement in new skills that are relevant, (d) strong family connections, (e) grouping all students with a caring adult, (f) coordinating curriculum and sharing data, and (g) highly qualified teachers.

There is not an overabundance of research on the effects of grade configuration on middle level students, particularly taking into account the implementation of developmentally responsive practices advocated by AMLE (Howley, 2002; Pardini, 2002). Of the research studies conducted, there is no clear relationship between student achievement and grade configuration alone. Therefore, it may be a mistake to look at big structures, such as grade configuration, when it may be the practices within those structures that have the bigger effect.

One common thread through all of the literature concerning grade span is that the excellence of a school depends on more than just the configuration of its grades. Beane and Lipka (2006) recognize that high-quality instruction and learning for early adolescents can exist in a variety of grade spans. Lipsitz et al., stated that the issue is not about grade configuration, but instead “what happens in those grades, no matter how they are configured” (1997, p. 533). As stated in Turning Points, 2000:

> Significant progress has been made in the journey to provide young adolescents with a developmentally responsive education. However, we are only halfway up the mountain, with the most important and perhaps most difficult part of the climb remaining (p. 5).

CHAPTER 3
RESEARCH DESIGN AND METHODOLOGY

To date, research has offered a mixed bag of results concerning the best organizational structure for early adolescents. Middle school proponents believe that adolescents flourish in age-appropriate settings that implement the developmentally appropriate practices of the middle school design. Other researchers, however, argue that the elimination of a transition from one level to the next is more beneficial to middle level learners.

Little research exists to explain the effects of K-8 grade configurations on student achievement in large urban districts, because until recently most of the K-8 schools were either private/parochial or located in more rural areas of the country. Despite the lack of research, many urban school districts are eliminating or reducing middle schools in favor of the K-8 configuration. Since pockets of K-8 schools are emerging in urban areas, it is now possible to study the effects of the new design with its middle school counterpart.

The purpose of this study is to compare, when controlling for minority rate and SES, the academic achievement levels in reading and mathematics of sixth grade students enrolled in K-8 urban schools to those of students who attended a traditional 6-8 urban middle school for students. In addition, the study will measure the degree of implementation of exemplary practices determined by the National Middle School Association (NMSA, 1982; NMSA, 1995) for the two grade configurations in relation to sixth grade student achievement. Finally, this study determines if any of those practices are predictive of student achievement in relation to the two grade configurations.

Research Proposal

Research Questions

This study will explore the following questions:

Question 1: Is there a relationship between any of the exemplary practices identified by NMSA/AMLE, including (a) interdisciplinary teaming, (b) common teacher planning time, (c) heterogeneous grouping, (d) student advisory, (e) exploratory courses, and (f) looping, and student achievement – as measured by student gains on the Florida Comprehensive Tests of Achievement Sunshine State Standards (FCAT-SSS) assessment system – for sixth grade students in K-8 and 6-8 middle schools in large urban school districts, when controlling for SES and minority rate?

Question 2: Are there differences in levels of implementation of NMSA/AMLE-identified exemplary practices in urban K-8 configured schools when compared to 6-8 configured middle schools?

Question 3: Are there differences in academic achievement in reading and mathematics for sixth grade public school students in K-8 configured schools when compared to sixth grade students in 6-8 configured middle schools, as measured by the Florida Comprehensive Tests of Achievement Sunshine State Standards (FCAT-SSS) assessment system?

Question 4: Is there a relationship between the level of implementation of exemplary middle level practices and academic achievement as measured by the Florida Comprehensive Tests of Achievement Sunshine State Standards (FCAT-SSS) assessment system for sixth grade students enrolled in urban K-8 configured schools compared to similar students in 6-8 middle schools?

Hypotheses

The following null hypotheses guided the investigation:

Ho_1: There is no relationship between the implementation of interdisciplinary teams and student achievement gains as measured by the FCAT SSS Developmental Scale Score for sixth grade students in an urban school district when controlling for school demographic factors of school size, grade level size, minority rate, SES rate, LEP rate, and ESE rate.

$Ho_1 1$: Interdisciplinary Teaming

$Ho_1 1_a$: Reading Achievement

$Ho_1 1_b$: Mathematics Achievement

$Ho_1 2$: Common Teacher Planning Time

$Ho_1 2_a$: Reading Achievement

$Ho_1 2_b$: Mathematics Achievement

$Ho_1 3$: Heterogeneous Grouping

$Ho_1 3_a$: Reading Achievement

$Ho_1 3_b$: Mathematics Achievement

$Ho_1 4$: Student Advisory

$Ho_1 4_a$: Reading Achievement

$Ho_1 4_b$: Mathematics Achievement

$Ho_1 5$: Exploratory Courses

$Ho_1 5_a$: Reading Achievement

$Ho_1 5_b$: Mathematics Achievement

$Ho_1 6$: Looping

$Ho_1 6_a$: Reading Achievement

$Ho_1 6_b$: Mathematics Achievement

Ho_2: There are no significant differences in the implementation of exemplary middle level practices in schools configured as K-8 compared to traditional middle schools with a 6-8 grade configuration.

$Ho_2 1$: Interdisciplinary Teaming

$Ho_2 1_a$: 6-8 Grade Configuration

$Ho_2 1_b$: K-8 Grade Configuration

$Ho_2 2$: Common Teacher Planning Time

$Ho_2 2_a$: 6-8 Grade Configuration

$Ho_2 2_b$: K-8 Grade Configuration

$Ho_2 3$: Heterogeneous Grouping

$Ho_2 3_a$: 6-8 Grade Configuration

$Ho_2 3_b$: K-8 Grade Configuration

$Ho_2 4$: Student Advisory

$Ho_2 4_a$: 6-8 Grade Configuration

$Ho_2 4_b$: K-8 Grade Configuration

$Ho_2 5$: Exploratory Courses

$Ho_2 5_a$: 6-8 Grade Configuration

$Ho_2 5_b$: K-8 Grade Configuration

$Ho_2 6$: Looping

$Ho_2 6_a$: 6-8 Grade Configuration

$Ho_2 6_b$: K-8 Grade Configuration

Ho_3: There are no significant differences in student achievement gains as measured by the FCAT SSS Developmental Scale Score for sixth grade students in a K-8 school compared to the same students in a traditional 6-8 middle school.

$Ho_3 1$: Reading Achievement

$Ho_3 1_a$: 6-8 Grade Configuration

$Ho_3 1_b$: K-8 Grade Configuration

$Ho_3 2$: Mathematics Achievement

$Ho_3 2_a$: 6-8 Grade Configuration

$Ho_3 2_b$: K-8 Grade Configuration

Ho_4: There is no relationship between exemplary middle school practices and student achievement gains as measured by the FCAT SSS Developmental Scale Score for sixth grade students who attend K-8 schools implementing exemplary middle level practices compared to the same students who attend traditional middle schools implementing the practices at the same level.

$Ho_4 1$: Interdisciplinary Teaming

$Ho_4 1_a$: 6-8 Grade Configuration

$Ho_4 1_{a1}$: Reading Achievement

$Ho_4 1_{a2}$: Mathematics Achievement

$Ho_4 1_b$: K-8 Grade Configuration

$Ho_4 1_{b1}$: Reading Achievement

$Ho_4 1_{b2}$: Mathematics Achievement

$Ho_4 2$: Common Teacher Planning Time

$Ho_4 2_a$: 6-8 Grade Configuration

$Ho_4 2_{a1}$: Reading Achievement

$Ho_4 2_{a2}$: Mathematics Achievement

$Ho_4 2_b$: K-8 Grade Configuration

$Ho_4 2_{b1}$: Reading Achievement

$Ho_4 2_{b2}$: Mathematics Achievement

$Ho_4 3$: Heterogeneous Grouping

$Ho_4 3_a$: 6-8 Grade Configuration

$Ho_4 3_{a1}$: Reading Achievement

$Ho_4 3_{a2}$: Mathematics Achievement

$Ho_4 3_b$: K-8 Grade Configuration

$Ho_4 3_{b1}$: Reading Achievement

$Ho_4 3_{b2}$: Mathematics Achievement

$Ho_4 4$: Student Advisory

$Ho_4 4_a$: 6-8 Grade Configuration

$Ho_4 4_{a1}$: Reading Achievement

$Ho_4 4_{a2}$: Mathematics Achievement

$Ho_4 4_b$: K-8 Grade Configuration

$Ho_4 4_{b1}$: Reading Achievement

$Ho_4 4_{b2}$: Mathematics Achievement

$Ho_4 5$: Exploratory Courses

$Ho_4 5_a$: 6-8 Grade Configuration

$Ho_4 5_{a1}$: Reading Achievement

$Ho_4 5_{a2}$: Mathematics Achievement

$Ho_4 5_b$: K-8 Grade Configuration

$Ho_4 5_{b1}$: Reading Achievement

$Ho_4 5_{b2}$: Mathematics Achievement

$Ho_4 6$: Looping

$Ho_4 6_a$: 6-8 Grade Configuration

$Ho_4 6_{a1}$: Reading Achievement

$Ho_4 6_{a2}$: Mathematics Achievement

$Ho_4 6_b$: K-8 Grade Configuration

$Ho_4 6_{b1}$: Reading Achievement

$Ho_4 6_{b2}$: Mathematics Achievement

Limitations

The study was limited to the following conditions:

1. The study was limited to the Florida Comprehensive Achievement SSS data in reading and mathematics reported to the state of Florida for the 2009-2010 and 2010-2011 school years.

2. Although the researcher recognizes that sixth graders can be educated in a variety of grade-level configurations, this study was limited to two configurations: (a) sixth grade students in schools with sixth through eighth grade, and (b) pre-kindergarten or kindergarten through eighth grade configurations.

3. The study was limited to a comparison of public K-8 and middle schools in urban districts larger than 100,000 students in the state of Florida participating in the state accountability system and may or may not be representative of other K-8 and middle schools in the United States.

4. The extent to which the survey responses by individuals in the respective schools represent the actual practices within the schools may limit the quality of the findings.

5. The study was limited to only those students who had achievement scores for both the 2009-2010 and the 2010-2011 school years. In addition, the study only included students in the K-8 design who had achievement data for the previous school year within the same K-8 school. Therefore, this study fails to account for the achievement of students who transfer to or from different school systems. Schools with high mobility rates would tend to confound the number of school-to-school transitions.

Delimitations

The following were delimitations to the study:

1. The study is delimited to the data offered by the research and evaluation departments provided by the identified districts of the participating schools.

2. Only middle schools and K-8 schools identified by the Florida Department of Education (FLDOE, 2011) were included in this study because an ample number of K-8 and comparable middle schools were available in that region, and all students took identical achievement tests.

3. K-8 and middle schools identified as charter schools, magnet schools, or schools of choice were not included in this study.

4. Achievement scores were limited to gains from fifth to sixth grade only.

5. Information from educators within the school about implementation of practices was delimited to a single set of questions related to degree of implementation provided in an online or paper survey.

Assumptions

The study also makes the following assumptions:

1. The study was based on the assumption that the student achievement data were appropriate measures for comparing academic achievement of middle schools and K-8 schools.

2. A further assumption was that comparable kind and quality of curriculum and instruction were present in both configurations of schools.

Data Sources

Population and Sample

This research focuses on the academic achievement of sixth grade students by differences in the implementation of model practices, by grade configuration, and by the

combination of both factors. Comparison groups include students in a K-8 grade configuration in large urban school districts and sixth grade students in traditional 6-8 middle schools with similar student demographics. Schools are also classified by their implementation of the following model practices: (a) interdisciplinary teaming, (b) common teacher planning, (c) advisory groups, (d) heterogeneous grouping, (e) exploratory courses, and (f) looping.

For accountability purposes, all kindergarten through twelfth grade public schools within the state of Florida are identified one of four types:

1 – Elementary School

2 – Middle School

3 – High School

4 – Combination School

Schools in the “combination” category consist of alternative schools, elementary/middle combination schools, middle/high combination schools, virtual schools, and other configurations and settings that can not be classified in the first three categories. K-8 schools within the state have all been classified by the “4 – Combination School” designation. A list was generated from the Florida Department of Education School Accountability website of all of the schools with the “combination” designation (FLDOE, 2011a). From the list, schools with middle/high or junior/senior in the school name were eliminated from consideration for this research.

For the purpose of defining a large urban district, the researcher chose school districts with student populations over 100,000. Of the 67 public school districts in Florida, only seven had student enrollments over 100,000 for the 2010-2011 school-

year. All of the seven large urban districts had schools identified as combination schools; however, many of the schools were identified as either “charter” or “magnet.” In Florida, charter and magnet schools are considered schools of choice, and parents must actively select to enroll their children in these special programs. Since charter and magnet schools may constitute a special population by virtue of selection factors, either on the part of the parent or the school program, these types of schools were eliminated in this research study. Charter schools were specifically identified on the list generated from the School Accountability webpage. Magnet schools were identified via a search of each school district’s school directory webpage. Therefore, only four of the seven urban districts had K-8 schools that fit the initial research criteria.

After the preliminary list was pared down to the non-magnet, non-charter schools in districts over 100,000, each school remaining on the list was researched individually. The exact grade configuration within each school was determined via school and district websites. Only schools that housed grades K-8 or PreK-8 were included in the K-8 category for this study. After all of the schools not meeting specified criteria were removed, there were 32 remaining K-8 schools during the 2010-11 school year that met the research conditions for this study.

The accountability data provided on the FLDOE website also included data regarding “Free or Reduced Lunch Rate” and “Minority Rate” for the 2010-2011 school year. The researcher used these data to match each of the identified K-8 schools with a traditional middle school within the same district. At the advice of Dr. Jerry Valentine from the Middle Level Leadership Center at the University of Missouri-Columbia, schools were matched first by the SES indicator, and then by minority rate, since SES

seems to have a more profound effect on achievement level than minority status. This was confirmed by the work of Offenberg (2001), who found that socioeconomic variables had a much more significant effect on student achievement than did the ethnic/racial background variable. The mean difference in Free or Reduced-Priced Lunch rate between the total enrollment of the K-8 and matched 6-8 school was 9.24 percentage points, and the mean difference in Minority Rate was 0.52 percentage points. Overall, the mean Free or Reduced-Priced Lunch rate was 57.61% for the K-8 cohort and 66.85% for the 6-8 group. The mean minority rate was 83.64% for the K-8 schools and 83.15% for the 6-8 schools.

The population of this study consisted of 32 K-8 schools and 32 middle schools with a 6-8 grade configuration within urban school districts with a student population over 100,000 located in Florida. All public, non-charter K-8 schools within the state were included in the research. Each middle school was selected by matching minority rates and SES rates as reported by the Florida Department of Education with each of the K-8 schools.

For the purpose of this study, the student sample consisted of 4,230 sixth grade students in K-8 schools, and 10,523 sixth grade students in the matched middle schools. The 32 K-8 schools had a total enrollment of 37,782 in 2010 for an average of 1,145 students per school. Enrollment in the 32 6-8 configured schools was 33,846, for an average of 1,026 students per school. Although the average enrollment at K-8 schools was slightly higher than the traditional 6-8 middle schools, the sixth grade cohort was much smaller due to the increased number of grades in K-8 schools. The K-8 schools had an average of 132 students in the sixth grade, while the 6-8 schools had

an average of 322 sixth graders per school. Only students with fifth grade FCAT scores during the 2009-2010 school year and sixth grade FCAT scores during the 2010-2011 school year were used in the study. Additionally, students who moved to or from one of the sample schools or were retained in sixth grade from the previous school year were removed from the sample.

The FCAT data was requested directly from the Research and Evaluation departments of each of the four Florida school districts used in this study. When submitting the data, districts were asked to include FCAT developmental scale scores for all sixth grade students from the 2010 and 2011 FCAT administrations. In addition, districts were asked to provide demographic information including free or reduced lunch status, ethnicity, gender, LEP status, Special Education status, and school attended by the student the previous year.

Permission to conduct research in the four large Florida school districts included in this study was obtained from the University of Florida Institutional Review Board. Since all student identification information was deleted, and this study used existing data, there was no direct contact with students. Therefore, informed consent forms for students were not required. However, informed consent forms were required for the learning leader survey participants.

To determine the extent in which exemplary practices were implemented in each of the schools, the building principal was asked to identify five learning leaders within the school. Learning leaders were also identified by school websites by title, such as “Sixth Grade Team Leader” or “Middle School Assistant Principal.” Each of the participants was sent via letter or email a link to an electronic survey. Participants could

also opt to complete a paper copy of the survey, by request. The survey questions were developed by the National Association of Secondary School Principals (Valentine, et al., 2002) as a part of a national study of effective leadership in middle level schools. Only the survey questions pertaining to the level of implementation of exemplary middle level practices and participant demographic information were used in this study.

Data Collection and Instrumentation

The Florida Comprehensive Achievement Test (FCAT) was used as the measure for student academic achievement in reading and mathematics for this study. The FCAT is a criterion-referenced test administered annually to Florida students in grades three through ten in reading and mathematics (Florida Department of Education, 2011a). Additionally, students in publicly funded schools are administered a state writing assessment in grades four, eight, and ten, and a science assessment in grades five, eight, and eleven. Because the writing and science assessments are not administered annually, their gain scores were not used in this study.

The “Sunshine State Standards” or SSS in reading and mathematics are tested at each grade level, with increasing levels of cognitive complexity with each grade level. Student scores on the SSS portion of the test are expressed as proficiency levels from one to five for general reporting, and also as scale scores, which are translated to a Developmental Scale Score (DSS). The DSS is used to track individual student progress from year to year. In addition to determining individual student performance, the gain scores on the DSS are also used to measure school and district progress under the state accountability program.

The survey used to determine the level of implementation of model practices was developed by the National Association of Secondary School Principals (NASSP) for two

national studies regarding successful middle level leadership and effective practices for middle level learners (Valentine, Clark, Hackmann, & Petzko, 2002; Valentine, Clark, Hackmann, & Petzko, 2004). In preparation for the 2002 study, the research team developed an extensive survey instrument containing 170 items. The survey is divided into sections, including school and principal demographics, school leadership, school programs, school reform and professional development, instructional practices, curricular and co-curricular programs, school organization, and leadership issues. Over 14,000 middle level principals participated in the 2002 study. Since this research focuses mainly on the implementation of effective middle level practices, only the portions of the survey corresponding to those practices were used.

Data Analysis

The primary statistical analyses programs used in this research are SPSS® Statistics, version 19.0 (SPSS, Inc., 2010) and SAS® 9.2 (SAS Institute Inc., 2008). The following statistical tools will be used to answer the research questions:

Ho_1: Multiple Regression

There is no relationship between the implementation of interdisciplinary teams and student achievement gains as measured by the FCAT SSS Developmental Scale Score for sixth grade students in an urban school district when controlling for school demographic factors of school size, grade level size, minority rate, SES rate, LEP rate, and ESE rate.

These hypotheses compare FCAT DSS achievement gain scores of students in the sample who were in the fifth grade in 2009-2010, and then in sixth grade the following year. Multiple regression using stepwise

regression was used to determine the relationships between the six exemplary practices predictor variables and student gain scores. Backward elimination was used to eliminate the variables that had the least effect on R^2 until only the most significant predictive variables remained.

Ho_2: Test of Differences

There are no significant differences in the implementation of exemplary middle level practices in schools configured as K-8 compared to traditional middle schools with a 6-8 grade configuration.

This hypothesis compares the degree of implementation of the exemplary middle level practices, including interdisciplinary teaming, common planning, advisory, heterogeneous grouping, exploratory programs, and looping, of K-8 schools with 6-8 schools, as reported by five learning leaders within each of the two types of schools. A t-Test for independent samples was used to compare the means for each of the exemplary practices in each type of school at the .05 level of significance.

Ho_3: Test of Differences

There are no significant differences in student achievement gains as measured by the FCAT SSS Developmental Scale Score for sixth grade students who remain in the same K-8 school from the previous year, when compared with students who transition from fifth grade to a 6-8 configured school.

These hypotheses compare the same group of students who were in the fifth grade in 2009-2010 and then in sixth grade the following year. The first group of students remained in the same K-8 school; the second group of students transitioned from an elementary school in fifth grade to a 6-8 configured middle school. T-tests for independent samples were calculated to compare FCAT SSS Developmental Scale Score achievement gain means from the 2010 to the 2011 administration for sixth grade students by school type at the .05 level of significance.

Ho_4: Hierarchical Linear Modeling (HLM)

There is no relationship between exemplary middle school practices and student achievement gains as measured by the FCAT SSS Developmental Scale Score for sixth grade students who attend K-8 schools implementing exemplary middle level practices compared to the same students attend traditional middle schools implementing the practices at the same level.

This hypothesis determines the degree to which the implementation of the exemplary middle level practices in each of the two sixth grade settings is predictive of academic achievement. Hierarchical Linear Modeling (HLM) was used to determine the correlation between the six exemplary practices predictor variables and the two grade configurations: K-8 and 6-8. HLM was chosen as a statistical tool because of the multi-layer dimension of the data. HLM has the ability to detect variations in

regression relationships by groups, and to test for main effects and interactions within and between levels of data (Willms,1999).

Table 3-1. List of instructionally responsive practices for middle level learners

Indicator	Description
Interdisciplinary Teams	Teams of 2 to 5 teachers that share a common group of students, and are located in close proximity to each other
Common Teacher Planning	Teams of teachers with a common group of students are assigned to a block of time to plan together on a daily basis
Exploratory Courses	Courses that provide required curricular opportunities for students to explore abilities, talents, and interests through diverse elective opportunities
Advisor Program	Student-advisor activities that are regularly scheduled for fifteen minutes or more on a daily basis
Heterogeneous Grouping	Scheduling students of mixed abilities into courses together in order to create a relatively even distribution of students in each classroom
Exploratory Program	Opportunities outside of the regular graded coursework that provide leadership roles, exploration in special interests, and socialization for students
Looping	Also called student-teacher progression or multi-year teaching, looping is the practices of keeping a small group of teachers together with the same group of students for two or more years.

(Valentine et al., 2002)

CHAPTER 4
ANALYSIS OF DATA

Presented and discussed in this chapter are the statistical analyses of data collected in this study. The purpose of this study was determine if any model middle level practices, including interdisciplinary teaming, common teacher planning, heterogeneous grouping, advisory groups, exploratory courses, and looping, contributed to the academic achievement of sixth grade students in urban school settings. The study also compared the level of implementation of the model practices to determine which grade configuration setting was most likely to fully implement the practices. In addition, the study compared student achievement of sixth grade students in the K-8 setting with that of students in a 6-8 grade configuration. Finally, the study examined the combined effects of model practices and grade configuration on academic achievement levels in reading and mathematics for sixth grade students enrolled in K-8 urban schools to those of students who attended a traditional 6-8 middle school in large urban school districts.

To answer these questions, student performance data from the state assessment for the two prior years, along with student demographic information, were requested from each of the participating school districts. Schools that house students in kindergarten through grade 8 and middle schools with grades six through eight were examined using sixth grade Florida Comprehensive Assessment Test data in both reading and mathematics. This assessment is criterion-referenced and designed to measure student mastery of the Florida Sunshine State Standards.

Further analyses were conducted to determine the degree of implementation of model level practices within each of the schools in the sample. These data were

collected by use of an educator survey administered to a sample of administrators, guidance counselors, and teachers in each of the schools within the sample. Responses for each sample school site, by grade configuration, were aggregated to determine a consensus regarding the degree of implementation by both school and grade configuration.

In addition, the study analyzed the effects of grade configuration and the implementation of model level practices on student achievement among sixth grade students, when controlling for demographic factors including disability rate, LEP rate, minority rate, and free/reduced-price lunch rate. Thus, the researcher sought answers to the following research questions:

1. Is there a relationship between any of the exemplary practices identified by NMSA/AMLE, including (a) interdisciplinary teaming, (b) common teacher planning time, (c) heterogeneous grouping, (d) student advisory, (e) exploratory courses, and (f) looping, and student achievement – as measured by student gains on the Florida Comprehensive Tests of Achievement Sunshine State Standards (FCAT-SSS) assessment system – for sixth grade students in K-8 and 6-8 middle schools in large urban school districts, when controlling for school and student demographic factors?

2. Are there differences in levels of implementation of NMSA/AMLE-identified exemplary practices in urban K-8 configured schools when compared to 6-8 configured middle schools?

3. Are there differences in academic achievement in reading and mathematics for sixth grade public school students in K-8 configured schools when compared to sixth grade students in 6-8 configured middle schools, as measured by the Florida Comprehensive Tests of Achievement Sunshine State Standards (FCAT-SSS) assessment system?

4. Is there a relationship between the level of implementation of exemplary middle level practices and academic achievement as measured by the Florida Comprehensive Tests of Achievement Sunshine State Standards (FCAT-SSS) assessment system for sixth grade students enrolled in urban K-8 configured schools compared to similar students in 6-8 middle schools?

Presentation of the Data

Descriptive Data

The population in this study was comprised of students, teachers, guidance counselors, and administrators from 32 middle schools with a 6-8 grade level configuration and 32 K-8 schools. The student population included a total of 14,753 sixth grade students from four large urban school districts. Of those students, 4,230 students were enrolled in K-8 schools, and 10,523 students were in the matched middle schools. From this student sample, 400 K-8 students and 998 6-8 students, for a total of 1,398 students, were excluded because they did not have FCAT DSS scores in reading or mathematics for one or both of the years in the study; therefore, gain scores could not be computed. Another 63 K-8 students and 285 6-8 students were excluded because they attended more than one school during the 2010-2011 school year. Because of this mid-year mobility, it would be difficult to attribute any gains or losses in reading or math to the configuration of the school or to the practices within those schools. Finally, another 10 K-8 students and 48 6-8 students were excluded because they were retained in sixth grade the prior year. Since the transition from fifth to sixth grade took place in a prior year, any differences related to grade configuration would have been present prior to the 2010-2011 school year. In all, a total of 1,804 students, consisting of 473 K-8 students and 1,331 6-8 students, were excluded from the sample. This constitutes 12.2% of the total sample, with an 11.2% reduction in the K-8 sample and a 12.6% reduction in the 6-8 sample. The demographic data of the students excluded from the study can be found in Table 4-1.

Table 4-1. Number of students excluded from study by demographic characteristics

Category	6-8 Configuration (n = 1,331)	K-8 Configuration (n = 473)	Total (n = 1,804)
Gender			
Female	599	209	808
Male	732	264	996
Race/Ethnicity			
American Indian/Alaskan	0	1	1
Asian	17	10	27
Black	404	97	501
Hispanic	633	289	922
Multi-Racial	16	2	18
White/Non-Hispanic	261	74	335
Limited English Proficient			
Less than 2 years (Current LEP)	284	131	415
More than 2 years (Former LEP)	221	90	311
None	826	252	1078
Free/Reduced Price Lunch			
Free	875	248	1123
Reduced Price	69	25	94
None	387	200	587
ESE (Excluding Gifted)			
Yes	236	94	330
No	1095	379	1474

The 32 K-8 schools had a total enrollment of 37,782 in the 2010-2011 school year, for an average of 1,145 students per school. Enrollment in the 32 6-8 configured schools was 33,846, for an average of 1,026 students per school. Although the average enrollment at K-8 schools was slightly higher than the traditional 6-8 middle schools, the sixth grade cohort was much smaller due to the increased number of grade levels in K-8 schools. The K-8 schools had an average of 132 students in the sixth grade, while the 6-8 schools had an average of 322 sixth graders per school. All of the schools in the study were located in metropolitan school districts with over 100,000 students enrolled in the public school systems.

The degree of implementation of model level practices was determined by surveying educators within each of the sample schools. Using both an online survey tool and paper surveys, 269 educators were surveyed in the identified school sample. 126 of the educators surveyed were in 6-8 schools, while the remaining 143 were in K-8 schools. Participants were either identified by an administrator within in the school or by job responsibility listed on the school website. Of the 269 surveyed, there was a total response rate of 72.6%, with196 educators responding. Of those responding, 101 of the educators were in 6-8 schools, for a 6-8 response rate of 80.2%, while the remaining 95 were in K-8 schools, for a K-8 response rate of 66.4%.

Statistical Compilation

Student data were aggregated by school configuration and by total student population. Each subgroup, including gender, race/ethnicity, limited English proficient, free/reduced-price lunch status, and primary exceptionality, were tested for group equivalency using the FREQ procedure in SPSS® software. Descriptive statistics for both of the student groups for developmental scale scores was obtained using the MEAN procedure using SPSS® software. The following tables represent the demographic data for the student population sample used in this study:

Table 4-2. Aggregate demographic data for student population by grade configuration and descriptive demographic data

	K-8 Configuration (n = 3,535)		6-8 Configuration (n= 9,192)		Total (n=12,727)	
	n	%	n	%	n	%
Free/Reduced Lunch Rate	2,006	56.8%	5,857	63.7%	7,863	61.8%
Minority Rate	2,926	83.8%	7,683	83.6%	10,609	83.4%
SWD Rate	372	10.5%	935	10.2%	1,307	10.3%
LEP Rate	196	5.5%	457	5.0%	653	5.1%

Table 4-3. Number of student participants by grade configuration and gender, race/ethnicity, limited English proficient, free or reduced-price lunch rates and exceptionality

Category	K-8 Configuration (n = 3,535)		6-8 Configuration (n = 9,192)		Total (n = 12,727)	
	n	%	n	%	n	%
Gender						
Male	1,784	50.5%	4,671	50.8%	6,455	50.7%
Female	1,751	49.5%	4,521	49.2%	6,272	49.3%
Race/Ethnicity						
American Indian/Alaskan Native	2	0.1%	12	0.1%	14	0.1%
Asian	74	2.1%	187	2.0%	261	2.1%
Black	678	19.2%	2,077	22.6%	2,755	21.6%
Hispanic	2,131	60.3%	5,261	57.2%	7,392	58.1%
Multi-Racial	55	1.6%	144	1.6%	199	1.5%
White/Non-Hispanic	595	16.8%	1,509	16.4%	2,104	16.5%
Limited English Proficient						
Less than 2 years (Current LEP)	196	5.5%	457	5.0%	653	5.1%
More than 2 years (Former LEP)	1,385	39.2%	3,430	37.3%	4,815	37.8%
None	1,954	55.3%	5,305	57.7%	7,259	57.0%
Free/Reduced Price Lunch						
Free	1,756	49.7%	5,026	54.7%	6,782	53.3%
Reduced Price	250	7.1%	831	9.0%	1,081	8.5%
None	1,529	43.3%	3,335	36.3%	4,864	38.2%
Primary Exceptionality						
Gifted	514	14.5%	1,735	18.9%	2,249	17.7%
Speech Impairment (SI)	28	0.7%	63	0.7%	91	0.7%
Language Impairment (LI)	10	0.3%	41	0.4%	51	0.4%
Specific Learning Disability (SLD)	246	7.0%	654	7.1%	900	7.1%
Intellectual Disability (InD)	8	0.2%	13	0.1%	21	0.2%
Emotional/Behavioral Disorder (E/BD)	21	0.6%	82	0.9%	103	0.8%
Deaf/Hard-of-Hearing (DHH)	25	0.7%	5	0.1%	30	0.2%
Visually Impaired (VI)	3	0.1%	8	0.1%	11	0.1%
Autism Spectrum Disorder (ASD)	12	0.3%	37	0.4%	49	0.4%
Orthopedic Impairment (OI)	1	0.0%	7	0.1%	8	0.1%
Other Health Impaired (OHI)	55	1.6%	125	1.4%	180	1.4%
Traumatic Brain Injury (TBI)	0	0.0%	2	>0.1%	2	>0.1%
Hospital/Homebound (H/H)	1	>0.1%	2	>0.1%	3	>0.1%

Individual student data were retrieved from each of the respective school districts and were entered in the Statistical Analysis System (SAS®) Version software. Descriptive statistics were used to report the means and standard deviations for the

dependent variables of FCAT Reading and Mathematics achievement with seven categories of students: (a) all sixth grade students, (b) students by sex, (c) students by race/ethnicity, (d) economically disadvantaged students, (e) limited English proficient students, (f) students with disabilities, and (g) giftedness. The following tables present the descriptive data:

Table 4-4. Mean gain scores and standard deviations for dependent variables by demographic factors

		FCAT Reading Gain Scores		FCAT Math Gain Scores	
Demographic Category	n	*M*	*SD*	*M*	*SD*
All students	12,727	102.7	213.4	28.5	153.2
School Type					
K-8 (Type 4)	3,535	126.5	215.0	49.0	151.5
6-8 (Type 2)	9,192	93.5	207.4	20.7	153.2
Gender					
Female	6,272	89.3	204.8	44.2	147.8
Male	6,455	115.7	220.8	15.8	157.4
Ethnicity/Race					
Am Indian/Alaskan	14	203.7	290.3	-16.9	236.0
Asian	261	139.3	237.8	60.7	140.2
Black	2,755	70.9	216.3	16.8	169.6
Hispanic	7,392	114.1	209.3	27.9	150.6
Multi-Racial	199	111.9	237.4	55.8	150.8
White	2,104	98.1	213.4	39.7	138.9
Free/Reduced Lunch Status					
Free	6,782	96.2	215.9	18.6	161.9
Reduced-Price	1,081	116.6	203.6	24.5	152.7
Full-Priced	4,864	108.7	211.8	43.3	139.2
Limited English Proficient					
Current LEP (<2 years)	653	184.2	317.0	61.8	231.8
Former LEP (≥2 years)	4,815	109.3	197.4	24.1	144.9
No LEP status	7,259	91.0	210.3	28.5	149.4
ESE Status					
Disabled	1,307	81.4	258.1	-6.4	212.0
Nondisabled	11,420	105.1	207.6	33.5	144.5
Gifted Status					
Gifted	2,249	101.2	224.4	47.8	130.8
Not identified gifted	10,478	103.0	211.0	24.4	157.3

The five categories were not independent of each other, since there was significant overlap among the categories. Thus, a direct comparison among these groups was not appropriate.

The degree of implementation of each of the model practices was determined based on educator survey. Using a web-based electronic survey (SurveyMonkey®, 2011), the surveys were delivered electronically from email addresses obtained from each of the school websites or provided by a school-based administrator. In addition, educators could elect to receive a paper copy of the survey. Of the 269 surveys that were distributed, 196 were returned, for a 72.6% response rate. The descriptive frequencies were calculated using SPSS 19.0 software. The data that represent the demographic composition of those completing the educator survey is found in Table 4-5.

Table 4-5. Educator survey participants by school configuration and demographic information

	Total (n = 196)		6-8 Configuration (n = 101)		K-8 Configuration (n = 95)	
Category	n	%	n	%	n	%
Sex						
Female	146	74.5%	72	71.3%	74	78.7%
Male	49	25.0%	29	28.7%	20	21.3%
No Response	1	0.5%	0	0.0%	1	1.1%
Age						
20-29	13	6.6%	7	6.9%	6	6.3%
30-39	56	28.6%	30	29.7%	26	27.7%
40-49	67	34.2%	36	35.6%	31	33.0%
50-59	42	21.4%	22	21.8%	20	21.3%
60 or older	16	8.2%	5	5.0%	11	11.7%
No Response	2	1.0%	1	1.0%	1	1.1%
Race/Ethnicity						
Asian	1	0.5%	1	1.0%	0	0.0%
Black	39	19.9%	25	24.8%	14	14.7%
Hispanic	61	31.1%	27	26.7%	34	35.8%
Multi-Racial	6	3.1%	3	3.0%	3	3.2%
White	84	42.9%	42	41.6%	42	44.2%

Table 4-5. Continued

Category	Total (n = 196) n	%	6-8 Configuration (n = 101) n	%	K-8 Configuration (n = 95) n	%
Sex (continued)						
No Response	5	2.6%	3	3.0%	2	2.1%
Years Experience						
First Year	2	1.0%	2	2.0%	0	0.0%
2-5 Years	20	10.2%	8	7.9%	12	12.6%
6-10 Years	39	19.9%	20	19.8%	19	20.0%
11-20 Years	71	36.2%	40	39.6%	31	32.6%
21-30 Years	46	23.5%	24	23.8%	22	23.2%
31+ Years	13	6.6%	5	5.0%	8	8.4%
No Response	5	2.6%	2	2.0%	3	3.2%
Years at Present School						
1-2 Years	45	23.0%	23	22.8%	22	23.2%
3-5 Years	66	33.7%	28	27.7%	38	40.0%
6-10 Years	41	20.9%	20	19.8%	21	22.1%
11-19 Years	31	15.8%	23	22.8%	8	8.4%
20+ Years	10	5.1%	5	5.0%	5	5.3%
No Response	3	1.5%	2	2.0%	1	1.1%
Primary Responsibility						
All Grades K-8	19	9.7%	0	0.0%	19	20.0%
Elementary (K-5)	4	2.0%	0	0.0%	4	4.2%
Middle (6-8)	171	87.2%	100	99.0%	71	74.7%
No Response	2	1.0%	1	1.0%	1	1.1%
Highest Degree Earned						
Bachelor's	58	29.6%	30	29.7%	28	29.5%
Master's	96	49.0%	49	48.5%	47	49.5%
Post-Master's	41	20.9%	22	21.8%	19	20.0%
No Response	1	0.5%	0	0.0%	1	1.1%
Degree in Education						
No	46	23.5%	26	25.7%	20	21.1%
Yes	149	76.0%	75	74.3%	74	77.9%
No Response	1	0.5%	0	0.0%	1	1.1%
Position in School						
Principal	18	9.2%	7	6.9%	11	11.6%
Assistant Principal	22	11.2%	16	15.8%	6	6.3%
Classroom Teacher	132	67.3%	68	67.3%	64	67.4%
Counselor	15	7.7%	6	5.9%	9	9.5%
Academic Coach	7	3.6%	2	2.0%	5	5.3%
No Response	2	1.0%	2	2.0%	0	0.0%

Analysis of Research Questions

Data analysis in this section focuses on each of the four research questions. Included are the null hypotheses developed to test each research question and the results of the data analysis.

Research Question 1: Is there a relationship between the exemplary practices identified by NMSA/AMLE, including (a) interdisciplinary teaming, (b) common teacher planning time, (c) heterogeneous grouping, (d) student advisory, (e) exploratory courses, and (f) looping, and student achievement – as measured by student gains on the Florida Comprehensive Tests of Achievement Sunshine State Standards (FCAT-SSS) assessment system – for sixth grade students in K-8 and 6-8 middle schools in large urban school districts?

Six corresponding null hypotheses were developed to test the first research question. These hypotheses compare FCAT DSS achievement gain scores of students in the sample who were in the fifth grade in 2009-2010, and then in sixth grade the following year. The degree of implementation of each of the identified practices was determined by educator survey. Each of the respondents rated the school on a scale from 1 to 5, with a score of 1 representing no implementation of the practice, and a score of 5 representing full implementation. The definitions on the surveys for each of the ratings were as follows:

1. No Implementation – We do not have this characteristic in our school
2. Little Implementation – We have this characteristic to a small degree
3. Partial Implementation – We implement this characteristic but not every aspect as described in the statement
4. Mostly Implemented – We implement most of the characteristics as described in the statement
5. Full Implementation – We implement every aspect of the characteristic as described in the statement

Nonparametric correlations using Spearman's rho with a two-tailed significance at the .05 level were calculated in SPSS® to determine preliminary correlations in reading and math gains with each of the model practices. Four of the K-8 schools had insufficient survey responses regarding the implementation of the model practices; therefore, those data were not used in this analysis. These correlations are reported in Table 4-6 and indicate that none of the practices correlate significantly with reading or math gains before adjusting for demographic variables.

Table 4-6. Nonparametric correlations of reading and math gain scores with model practices

	FCAT DSS Reading Gains		FCAT DSS Math Gains	
	r_{xy}	2-tailed significance[a]	r_{xy}	2-tailed significance[a]
Interdisciplinary Teaming	0.197	0.139	0.142	0.286
Common Planning	-0.026	0.845	0.130	0.329
Exploratory Courses	0.113	0.399	-0.074	0.583
Advisory	0.251	0.057	-0.086	0.520
Heterogeneous Grouping	0.082	0.540	-0.206	0.121
Looping	-0.040	0.763	-0.150	0.260

[a]Correlations significant at the .05 level (2-tailed)

Linear regression using stepwise regression in SPSS® was used to determine the relationships between the six exemplary practices predictor variables and student gain scores. Covariates included total school enrollment, school sixth grade enrollment, school free or reduced-price lunch rate, and school minority rate.

$Ho_1$1: There is no relationship between the implementation of interdisciplinary teams and student achievement gains as measured by the FCAT SSS Developmental Scale Score for sixth grade students in an urban school district when controlling for school demographic factors of school size, grade level size, minority rate, SES rate, LEP rate, and ESE rate.

The survey described the implementation of this variable as “interdisciplinary teams of 2 to 5 teachers sharing common students and housed in close proximity.” Survey participants rated their implementation of this practice on a scale of 1 to 5, with 1 meaning no implementation of this practice and 5 defined as full implementation. Implementation scores of participants within the same school were combined into a school average.

A linear regression test using stepwise regression in SPSS® was performed using the degree of implementation of interdisciplinary teaming as the dependent variable, reading and math gains, school enrollment, sixth grade enrollment, school minority rate, school LEP rate, school ESE rate and school free and reduced-price lunch rate as independent variables. The analysis revealed that there were no significant differences in student academic achievement in mathematics and reading gains and interdisciplinary teaming, even when controlling for school enrollment, free and reduced price lunch rate, and minority rate. The only significant predictor of the degree of implementation of interdisciplinary teams at the .05 level was sixth grade enrollment. Schools that had smaller sixth grade level sizes had a higher self-rating of the implementation of interdisciplinary teaming. Since no differences were found in math or reading gains, the null hypothesis was retained. These data are shown in Table 4-7, and represent the results for the relationship between the independent variables and the dependent variable of interdisciplinary teaming.

Table 4-7. Significance of interdisciplinary teaming and student achievement gains with descriptive characteristic tested through linear regression

	t	Significance	Partial Correlation	Collinearity Statistics Tolerance
Reading Gains	0.006	0.996	0.001	0.938
Math Gains	0.401	0.690	0.054	0.866
School Enrollment	-0.102	0.919	-0.014	0.823
Free/Reduced Lunch Rate	0.165	0.869	0.022	0.998
Minority Rate	-0.507	0.614	-0.068	1.000
LEP Rate	-0.025	0.980	-0.003	1.000
ESE Rate	-0.746	0.459	-0.100	0.967
Sixth Grade Enrollment	-2.188	0.033	--	--

$Ho_1$2: There is no relationship between the implementation of common teacher planning and student achievement gains as measured by the FCAT SSS Developmental Scale Score for sixth grade students in an urban school district when controlling for school demographic factors of school size, grade level size, minority rate, SES rate, LEP rate, and ESE rate.

The survey described the implementation of this variable as “common teacher planning for teachers with the same set of students provided on a daily basis.” Survey participants rated their school’s implementation of this practice on a scale of 1 to 5, with 1 meaning no implementation of this practice and 5 defined as full implementation. Implementation scores of participants within the same school were combined into a school average.

A linear regression test using stepwise regression in SPSS® was performed using the degree of implementation of common teacher planning as the dependent variable, reading and math gains, school enrollment, sixth grade enrollment, school minority rate, school LEP rate, school ESE rate and school free and reduced-price lunch rate as

independent variables. The only significant predictor of the degree of implementation of common teacher planning at the .05 level was ESE rate. Since no differences in student achievement were found, the null hypothesis was retained. These data are shown in Table 4-8, and represent the results for the relationship between the dependent variable of implementation of common teacher planning and the independent variables of reading and math gain scores, and the school level independent variables.

Table 4-8. Significance of common teacher planning and student achievement gains with descriptive characteristic tested through linear regression

	t	Significance	Partial Correlation	Collinearity Statistics Tolerance
Reading Gains	-0.009	0.993	-0.001	0.954
Math Gains	1.156	0.252	0.154	0.998
Sixth Grade Enrollment	-1.588	0.118	-0.209	0.967
Free/Reduced Lunch Rate	-0.260	0.979	-0.004	0.881
Minority Rate	-1.209	0.232	-0.161	0.993
Total School Enrollment	-1.432	0.158	-0.190	0.878
LEP Rate	-1.086	0.282	-0.145	0.958
ESE Rate	2.113	0.039	--	--

$Ho_1$3: There is no relationship between the implementation of heterogeneous grouping and student achievement gains as measured by the FCAT SSS Developmental Scale Score for sixth grade students in an urban school district when controlling for school demographic factors of school size, grade level size, minority rate, SES rate, LEP rate, and ESE rate.

The survey described the implementation of this variable as “students assigned to teams heterogeneously, either at random or purposefully, rather than by ability, achievement, or interest.” Survey participants rated their implementation of this practice on a scale of 1 to 5, with 1 meaning no implementation of this practice and 5 defined as

full implementation. Implementation scores of participants within the same school were combined into a school average.

A linear regression test in SPSS® was performed using the degree of implementation of heterogeneous grouping as the dependent variable, reading and math gains, school enrollment, sixth grade enrollment, school minority rate, school LEP rate, school ESE rate and school free and reduced-price lunch rate as independent variables. Stepwise regression yielded no significant results. In addition, the practice of heterogeneous grouping did not significantly correlate to any of the factors. Since no differences were found, the null hypothesis was retained. These data are shown in Table 4-9, and represent the results for the relationship between the dependent variable of heterogeneous grouping with the independent variables of reading and math gain scores, as well as the other classification variables in relationship to the dependent variable.

Table 4-9. Significance of heterogeneous student grouping and student achievement gains with descriptive characteristic tested through General Linear Model procedure

	t	Significance
Reading Gains	1.028	0.845
Math Gains	-1.353	0.687
Total School Enrollment	-0.275	0.671
Sixth Grade Enrollment	0.599	0.463
Free/Reduced Lunch Rate	-0.837	0.762
ESE Rate	0.545	0.588
LEP Rate	1.295	0.201
Minority Rate	0.467	0.286

$Ho_1$4: There is no relationship between the implementation of advisory groups and student achievement gains as measured by the FCAT SSS Developmental Scale Score

for sixth grade students in an urban school district when controlling for school demographic factors of school size, grade level size, minority rate, SES rate, LEP rate, and ESE rate.

The survey described the implementation of this variable as “advisor-advisee program regularly scheduled for 15 minutes or more during each classroom day.” Survey participants rated their implementation of this practice on a scale of 1 to 5, with 1 meaning no implementation of this practice and 5 defined as full implementation. Implementation scores of participants within the same school were combined into a school average.

A linear regression test using stepwise regression yielded in SPSS® revealed no significant differences in student academic achievement in mathematics and reading gains with the implementation of student teacher advisory groups, or with any of the other school level variables. Since no differences were found, the null hypothesis was retained. In addition, the implementation of advisory groups did not significantly correlate with any of the additional factors. These data are shown in Table 4-10, and represent the results for the relationship between the independent variables and the dependent variables, 2011 reading and math gain scores, as well as the other classification variables in relationship to the dependent variable.

Table 4-10. Significance of advisory periods and student achievement gains with descriptive characteristic tested through General Linear Model procedure

	t	Significance
Reading Gains	1.490	0.143
Math Gains	-0.833	0.409
Total School Enrollment	1.165	0.250
Sixth Grade Enrollment	-0.071	0.944
Free/Reduced Lunch Rate	-0.708	0.482

Table 4-10. Continued

	t	Significance
ESE Rate	1.704	0.095
LEP Rate	-1.423	0.161
Minority Rate	1.355	0.182

$Ho_1$5: There is no relationship between the implementation of exploratory course offerings and student achievement gains as measured by the FCAT SSS Developmental Scale Score for sixth grade students in an urban school district when controlling for school demographic factors of school size, grade level size, minority rate, SES rate, LEP rate, and ESE rate.

The survey described the implementation of this variable as “exploratory course offerings which provide required curricular opportunities for all students.” Survey participants rated their implementation of this practice on a scale of 1 to 5, with 1 meaning no implementation of this practice and 5 defined as full implementation. Implementation scores of participants within the same school were combined into a school average.

A linear regression test in SPSS® was performed using the degree of implementation of exploratory courses as the dependent variable, reading and math gains, school enrollment, sixth grade enrollment, school minority rate, school LEP rate, school ESE rate and school free and reduced-price lunch rate as independent variables. The only variable that yielded significant results in relation to the implementation of exploratory courses was minority rate. In this study, greater implementation of exploratory courses was negatively related to minority rate, with schools having the highest rates of minority students reporting the lowest implementation of this practice.

The practice of exploratory course offerings did not significantly correlate to any of the other factors. Since no differences were found in reading and mathematics gain scores, the null hypothesis was retained. These data are shown in Table 4-11, and represent the results for the relationship between the dependent variable of exploratory courses with the independent variables of reading and math gain scores, as well as the other classification variables in relationship to the dependent variable.

Table 4-11. Significance of exploratory courses and student achievement gains with descriptive characteristic tested through General Linear Model procedure

	t	Significance	Partial Correlation	Collinearity Statistics Tolerance
Reading Gains	1.036	0.305	0.138	0.991
Math Gains	-0.616	0.540	-0.083	0.937
School Enrollment	-0.217	0.787	-0.037	0.992
Sixth Grade Enrollment	-0.226	0.822	-0.030	1.000
Free/Reduced Lunch Rate	-0.494	0.623	-0.066	0.531
ESE Rate	-1.261	0.213	-0.168	0.993
LEP Rate	-0.652	0.517	-0.088	0.948
Minority Rate	-2.262	0.028	--	--

$Ho_1$6: There is no relationship between the implementation of looping and student achievement gains as measured by the FCAT SSS Developmental Scale Score for sixth grade students in an urban school district when controlling for school demographic factors of school size, grade level size, minority rate, SES rate, LEP rate, and ESE rate.

The survey described the implementation of this variable as “looping groups of students with the same teacher or teachers for more than one school year.” Survey participants rated their implementation of this practice on a scale of 1 to 5, with 1 meaning no implementation of this practice and 5 defined as full implementation.

Implementation scores of participants within the same school were combined into a school average.

A linear regression test in SPSS® was performed using the degree of implementation of looping as the dependent variable, reading and math gains, school enrollment, sixth grade enrollment, school minority rate, school LEP rate, school ESE rate and school free and reduced-price lunch rate as independent variables. The only variable that yielded significant results in relation to the implementation of looping was minority rate, with schools having the highest minority rates more likely to implement the practice of looping. The level of implementation of looping did not significantly correlate to any of the other factors. Since no differences were found in reading and mathematics gain scores, the null hypothesis was retained. These data are shown in Table 4-12, and represent the results for the relationship between the dependent variable of looping with the independent variables of reading and math gain scores, as well as the other classification variables in relationship to the dependent variable.

Table 4-12. Significance of looping and student achievement gains with descriptive characteristic tested through General Linear Model procedure

	t	Significance	Partial Correlation	Collinearity Statistics Tolerance
Reading Gains	0.331	0.742	0.045	0.991
Math Gains	-0.024	0.981	-0.003	0.937
School Enrollment	0.061	0.952	0.008	0.992
Sixth Grade Enrollment	-0.621	0.537	-0.083	1.000
Free/Reduced Lunch Rate	0.069	0.945	0.009	0.531
LEP Rate	-1.354	0.181	-0.180	0.948
ESE Rate	0.329	0.744	0.044	0.993
Minority Rate	2.020	0.048	--	--

In summary, there was no relationship between the model middle-level practices and student achievement in reading or mathematics, including interdisciplinary teaming, common teacher planning, heterogeneous student grouping, student advisory periods, exploratory courses, and looping. The only factors that were related to the implementation of the practices were the number of students in the sixth grade within the school, school minority rate, and school ESE rate.

Schools with smaller sixth grade enrollments had a higher reported implementation of interdisciplinary teaming. In addition, schools with higher rates of students with disabilities were more likely to report a higher implementation of common teacher planning. Minority rates were positively related to the practice of looping, with teachers staying with the same group of students for multiple years. Conversely, minority rates were negatively related to the implementation of exploratory courses.

Research Question 2: Are there differences in levels of implementation of NMSA/AMLE-identified exemplary practices in urban K-8 configured schools when compared to 6-8 configured middle schools?

This hypothesis compares the degree of implementation of the exemplary middle level practices, including interdisciplinary teaming, common planning, advisory, heterogeneous grouping, exploratory programs, and looping, of K-8 schools with 6-8 schools, as reported by survey participants who were educators within each of the two types of schools. Six corresponding null hypotheses for each of the corresponding practices were developed to test the second question.

Group statistics were computed in SPSS® for each of the exemplary practices for both school types, which are presented in Table 4-13. Of the schools participating in the study, four of the K-8 schools had insufficient survey data with respect to implementation of the exemplary practices, so those schools were not included in the

analysis of these data. With the exception of heterogeneous grouping, all means for reported implementation of each of the practices were higher in the K-8 schools than in the 6-8 schools.

Table 4-13. Group statistics of exemplary middle practices by grade configuration

Exemplary Practice	School Type	n	Mean	Std Deviation	Std Error Mean
Interdisciplinary Teams	6-8	32	3.049	0.988	0.175
	K-8	28	3.727	0.984	0.186
Exploratory Courses	6-8	32	3.591	0.761	0.134
	K-8	28	3.746	0.784	0.148
Advisory	6-8	32	2.273	1.124	0.199
	K-8	28	2.429	1.260	0.238
Heterogeneous Groups	6-8	32	2.734	0.914	0.162
	K-8	28	2.649	0.851	0.161
Common Planning	6-8	32	2.451	1.163	0.206
	K-8	28	2.981	1.197	0.226
Looping	6-8	32	1.867	0.783	0.138
	K-8	28	1.985	1.128	0.213

A t-Test for independent samples was used to compare the means for each of the exemplary practices in each type of school at the .05 level of significance, which is presented in Table 4-14.

Table 4-14. Comparison of means of implementation levels of model practices by grade configuration

	Levine's Test for Equality of Variance		t-test for Equality of Means						
	F	Sig	t	df	Sig[a]	Mean Diff	Std Error Diff	95% Conf. Interval Lower	Upper
Interdisciplinary	.004	.948	-2.654	58.00	.010	-.677	.255	-1.188	-.166
Exploratory	.014	.906	-.775	58.00	.442	-.155	.200	-.554	.245
Advisory	.546	.463	-.504	58.00	.616	-.155	.308	-.771	.461
Het Group	.592	.445	.371	58.00	.712	.085	.229	-.374	.543
Common Plan	.117	.733	-1.739	58.00	.087	-.530	.305	-1.141	.081
Looping	3.150	.081	-.473	58.00	.638	-.117	.248	-.614	.380

[a]two-tailed

Since the significance for Levine's Test for Equality Variance is greater than .05 in each case, equal variance is assumed.

$Ho_2$1: There are no significant differences in the implementation of interdisciplinary teaming in schools configured as K-8 compared to traditional middle schools with a 6-8 grade configuration.

After performing a t-Test for independent samples in SPSS, the analysis revealed that there were significant differences in grade configuration and the implementation of interdisciplinary teaming, with K-8 schools reporting a higher implementation level than the 6-8 schools. Since significant differences were found, the null hypothesis was rejected. These data are shown in Table 4-14.

$Ho_2$2: There are no significant differences in the implementation of common teacher planning time in schools configured as K-8 compared to traditional middle schools with a 6-8 grade configuration.

After performing a t-Test for independent samples in SPSS, the analysis revealed that there were no significant differences in grade configuration and the implementation of common teacher planning time. Since no differences were found, the null hypothesis was retained. These data are shown in Table 4-14.

$Ho_2$3: There are no significant differences in the implementation of heterogeneous student grouping in schools configured as K-8 compared to traditional middle schools with a 6-8 grade configuration.

After performing a t-Test for independent samples in SPSS, the analysis revealed that there were no significant differences in grade configuration and the implementation

of heterogeneous student grouping. Since no differences were found, the null hypothesis was retained. These data are shown in Table 4-14.

$Ho_2$4: There are no significant differences in the implementation of student-teacher advisory groups in schools configured as K-8 compared to traditional middle schools with a 6-8 grade configuration.

After performing a t-Test for independent samples in SPSS, the analysis revealed that there were no significant differences in grade configuration and the implementation of student-teacher advisory groups. Since no differences were found, the null hypothesis was retained. These data are shown in Table 4-14.

$Ho_2$5: There are no significant differences in the implementation of exploratory courses in schools configured as K-8 compared to traditional middle schools with a 6-8 grade configuration when controlling for SES and minority rate.

After performing a t-Test for independent samples in SPSS, the analysis revealed that there were no significant differences in grade configuration and the implementation of exploratory courses. Since no differences were found, the null hypothesis was retained. These data are shown in Table 4-14.

$Ho_2$6: There are no significant differences in the implementation of looping in schools configured as K-8 compared to traditional middle schools with a 6-8 grade configuration when controlling for SES and minority rate.

After performing a t-Test for independent samples in SPSS, the analysis revealed that there were no significant differences in grade configuration and the implementation of looping. Since no differences were found, the null hypothesis was retained. These data are shown in Table 4-14.

In summary, the grade configuration of the school was not predictive of the level of implementation of most of the model middle level practices, including common teacher planning, heterogeneous grouping, advisory groups, exploratory courses, and looping. However, the reported level of implementation of interdisciplinary teaming was significantly higher in K-8 schools than in 6-8 schools.

Research Question 3: Are there differences in academic achievement in reading and mathematics for sixth grade public school students in K-8 configured schools when compared to sixth grade students in 6-8 configured middle schools, as measured by the Florida Comprehensive Tests of Achievement Sunshine State Standards (FCAT-SSS) assessment system?

To test the differences in student achievement gains by grade level configurations within the sample schools, two null hypotheses were developed. These hypotheses compare the same group of students who were in the fifth grade in 2009-2010 and then in sixth grade the following year. The first group of students remained in the same K-8 school; the second group of students transitioned from an elementary school in fifth grade to a 6-8 configured middle school. T-tests for independent samples were calculated in SPSS® to compare FCAT SSS Developmental Scale Score achievement gain means in both reading and mathematics from the 2010 to the 2011 administration for sixth grade students by school type at the 0.05 level of significance.

$Ho_3$1: There are no significant differences in student reading achievement gains as measured by the FCAT SSS Developmental Scale Score for sixth grade students in a K-8 school compared to the same students in a traditional 6-8 middle school.

Group means and standard deviations are shown in Table 4-15, and represent a comparison between the variable of grade configuration, and the dependent variable, 2011 sixth grade reading achievement gains on the FCAT. An initial comparison of the

means indicate the gain scores in K-8 schools were higher than in those in 6-8 configured schools.

Table 4-15. Group means and standard deviations of sixth grade FCAT reading gain scores from 2010 to 2011 by school grade configuration

		Reading Gain Scores		
School Type	N	Mean	Std. Deviation	Std. Error Mean
6-8 Middle	9,192	93.53	215.026	2.243
K-8 Combination	3,525	126.53	207.401	3.488

A t-Test for independent samples to compare the reading gain means in K-8 schools and 6-8 schools was conducted using SPSS®. Since Levene's Test for Equality of Variance was less than .05, equal variances were not assumed. The analysis revealed that there were significant differences in grade configuration and reading achievement gains at the .05 level, with the students in the K-8 schools scoring significantly higher than their peers in the 6-8 schools. The results from the t-Test are found in Table 4-16.

Table 4-16. Independent Samples test for sixth grade FCAT reading gain scores from 2010 to 2011 by school grade configuration

		Levene's Test for Equality of Variance		t-test for Equality of Means						
	Equal variances	F	Sig.	t	df	Sig.[a]	Mean Diff	Std Er Diff	95% Conf Int Lower	95% Conf Int Upper
Reading Gains	assumed	4.988	.026	-7.832	12725	.000	-33.005	4.214	-41.266	-24.745
	not assumed			-7.959	6624.3	.000	-33.005	4.147	-41.135	-24.876

[a]Two-tailed

Further analysis was conducted to determine the effects of the school demographic factors on student reading gains. Linear regression in SPSS® was used with reading gains entered as the dependent variable, school configuration as the selection factor and total school enrollment, sixth grade class size, school minority rate,

free/reduced-price lunch rate, ESE rate, and LEP rate as the predictors. Those results are presented in Table 4-17.

The only significant predictors of reading achievement gains at the .05 significance level were found in the 6-8 configured middle schools. Free/reduce-priced lunch rate was negatively related to reading gain scores in middle schools, while minority rate was positively related to increased gain scores. There were no significant predictors of reading gain scores in the K-8 schools.

Table 4-17. Linear regression of reading gains grouped by school configuration and using school factors as predictors

	Unstandardized Coefficients		Standardized Coefficients		
Model	B	Std Error	Beta	t	Sig
6-8 Configuration					
(Constant)	35.337	39.388		0.897	0.378
Enrollment	-0.032	0.031	-0.337	-1.022	0.316
6th Enrollment	0.137	0.107	0.442	1.278	0.213
Lunch Rate	-1.348	0.562	-0.870	-2.398	0.024
Minority Rate	1.530	0.595	0.765	2.572	0.016
LEP Rate	0.369	1.247	0.055	0.296	0.770
ESE Rate	0.365	1.389	0.051	0.262	0.795
K-8 Configuration					
(Constant)	135.166	43.497		3.107	0.005
Enrollment	0.065	0.041	0.585	1.581	0.127
6th Enrollment	-0.354	0.301	-0.432	-1.179	0.250
Lunch Rate	-0.383	0.339	-0.278	-1.132	0.269
Minority Rate	-0.250	0.529	-0.112	-0.473	0.641
LEP Rate	1.192	1.433	0.164	0.832	0.414
ESE Rate	-0.117	1.159	-0.021	-0.101	0.921

$Ho_3$2: There are no significant differences in student mathematics achievement gains as measured by the FCAT SSS Developmental Scale Score for sixth grade

students in a K-8 school compared to the same students in a traditional 6-8 middle school.

Group means and standard deviations are shown in Table 4-18, and represent a comparison of the mean mathematics gain scores for sixth grade students in a K-8 setting and a 6-8 setting. Initial analysis indicated that the students in the K-8 schools had greater gains in math than their 6-8 peers, although the mean gain scores for both grade configurations were much lower than the reading gain scores.

Table 4-18. Group means and standard deviations of sixth grade FCAT math gain scores from 2010 to 2011 by school grade configuration

			Math Gain Scores	
School Type	N	Mean	Std. Deviation	Std. Error Mean
6-8 Middle	9,192	20.66	153.164	1.598
K-8 Combination	3,535	49.00	151.529	2.549

A t-Test for independent samples to compare the mathematics FCAT gain means in K-8 schools and 6-8 schools was conducted using SPSS®. Since Levene's Test for Equality of Variance was greater than .05, equal variances were assumed. The analysis revealed that there were significant differences in grade configuration and math achievement gains at the .05 level, with the students in the K-8 schools scoring significantly higher than their peers in the 6-8 schools. The results from the t-Test are found in Table 4-19.

Table 4-19. Independent Samples test for sixth grade FCAT math gain scores from 2010 to 2011 by school grade configuration

		Levene's Test for Equality of Variance		t-test for Equality of Means						
	Equal variances	F	Sig.	t	df	Sig.[a]	Mean Diff	Std Error Diff	95% Confidence Interval Lower	Upper
Math Gains	assumed	.604	.437	-9.376	12725	.000	-28.337	3.022	-34.261	-24.413
	not assumed			-9.421	6472.5	.000	-28.337	3.008	-34.234	-22.441

[a]Two-tailed

Further analysis was conducted to determine the effects of the school demographic factors on student math gains. Linear regression in SPSS® was used with math gains as the dependent variable, school configuration as the selection factor and total school enrollment, sixth grade class size, school minority rate, free/reduced-price lunch rate, ESE rate, and LEP rate as the predictors. Those results are presented in Table 4-20. There were no significant predictors of math achievement gains at the 0.05 significance level in the both 6-8 and K-8 configured middle schools.

Table 4-20. Linear regression for math gains grouped by school configuration and using school factors as predictors

	Unstandardized Coefficients		Standardized Coefficients		
Model	B	Std Error	Beta	t	Sig
6-8 Configuration					
(Constant)	80.483	47.858		1.682	0.105
Enrollment	-0.020	0.038	-0.182	-0.523	0.605
6th Enrollment	0.036	0.130	0.102	0.277	0.784
Lunch Rate	-1.136	0.683	-0.638	-1.663	0.109
Minority Rate	0.234	0.723	0.102	0.323	0.749
LEP Rate	2.696	1.516	0.353	1.779	0.087
ESE Rate	-1.030	1.688	-0.125	-0.610	0.547
K-8 Configuration					
(Constant)	125.111	52.735		2.372	0.026
Enrollment	0.057	0.050	0.388	1.146	0.263
6th Enrollment	-0.682	0.365	-0.626	-1.872	0.073
Lunch Rate	0.703	0.410	0.385	1.713	0.100
Minority Rate	-0.951	0.642	-0.321	-1.482	0.151
LEP Rate	-2.388	1.737	-0.248	-1.375	0.182
ESE Rate	0.107	1.405	0.015	0.076	0.940

Research Question 4: Is there a relationship between the level of implementation of exemplary middle level practices and academic achievement as measured by the Florida Comprehensive Tests of Achievement Sunshine State Standards (FCAT-SSS) assessment system for sixth grade students enrolled in urban K-8 configured schools compared to similar students in 6-8 middle schools?

This research question was developed to determine the degree to which the implementation of the exemplary middle level practices in each of the two sixth grade settings is predictive of academic achievement. To test this question, six null hypotheses were developed for each of the model practices, with sub-hypotheses for both reading and mathematics achievement gains in each of the two school grade configurations, K-8 and 6-8.

The GLIMMIX Procedure, a general linear mixed model within SAS® 9.2 for hierarchical linear modeling, was used to determine the relationship between the six exemplary practices predictor variables, reading and math achievement gain scores, and the two grade configurations: K-8 and 6-8. GLIMMIX was chosen as a statistical tool because of the multi-layer dimension of the data. The general linear mixed model can be represented by: $Y=\alpha+\beta X+\gamma Z+\varepsilon$ where Y is the outcome of observed response data, X is a set of fixed effects in the design, Z is the matrix of random effects, α is the population intercept, β is the coefficient for unknown fixed effects parameters, and ε represents the random errors (Ferrell, 2008). This model has the ability to detect variations in regression relationships by groups, and to test for main effects within and between levels of data in a hierarchical system (Willms, 1999). Because student achievement data is nested within the identified model practices, which are in turn nested within both 6-8 and K-8 configured schools with varying levels of implementation of each of the model practices, GLIMMIX was determined to be the most effect method

for studying the relationship at any level of the analysis, while taking into account the variability of each level of the hierarchy.

The lowest level of data for this analysis, L1, is student-level data, including student achievement gains in reading and mathematics, as well as all of the demographic information for each of the individual students. The second level of data, L2, is school-level data regarding the level of implementation of each of the six model practices for exemplary middle-level schools. Finally, the third level, L3, consists of the two groups of grade configurations of the schools in the sample, either a K-8 grade configuration or a 6-8 grade configuration.

Ho_4: There is no relationship between the level of implementation of the exemplary middle level practices and student achievement gains as measured by the FCAT SSS Developmental Scale Score for sixth grade students who attend K-8 schools implementing exemplary middle level practices compared to the same students attend traditional middle schools implementing the practices at the same level.

To determine the relationship between exemplary middle level practices, student achievement gains, and grade configuration, school and individual student data were first analyzed for fixed effects in SAS®. The fixed effects model directly estimates unobserved individual differences between students as a “set of fixed parameters” (Allison, 2008, p. 1). Correlations between the estimates of unobserved differences with the observed variables, if any, are allowed in the fixed effects model. However, with fixed effects, the p-values are higher and the confidence intervals are wider, due to the use of only “within-individual” differences. In this case reading and math scores on the FCAT DSS from 2010 and 2011 were each treated separately as the dependent

variable. It is important to note that the Developmental Scale Scores provide directly comparable scores from different test administrations and across a number of years. Preliminary reading achievement correlations with effects are found in Table 4-21, and math achievement correlations with effects are found in Table 4-22.

The Type III Tests of Fixed Effects shows the significance of each of the fixed effects in the model. The Kenward-Roger option was used to adjust the estimated variance of the fixed effects. Since there were no significant differences in any of the model middle level practices for reading or math, the null hypothesis was retained. None of the model practice effects significantly correlated to achievement gain scores in either reading or math. The Type III Tests of Fixed Effects for reading achievement are found in Table 4-23, and for math achievement in Table 4-24.

Although none of the model practices significantly correlated with reading or math gain scores, the research revealed other noteworthy findings. For example, K-8 schools had higher gain scores than 6-8 schools in both reading and math. With respect to reading achievement, females had significantly lower gain scores than their male peers. However, the reverse was true with in math, with female math gain scores significantly higher than male sixth grade students. In addition, Asian and Native American students had higher reading gain scores, while black students did significantly worse in reading. There were no significant correlations between race/ethnicity and math gain scores. Students on free lunch had significantly lower gain scores in reading than students on reduced-price lunch or not on any subsidized lunch program, with no significant findings based on lunch status and math gains. Interestingly, students who were currently limited-English proficient had much higher gain scores in both reading

and math than non-LEP students, and non-gifted had greater gains in both reading and math than students identified as gifted. Students with disabilities had significantly lower gain scores in both reading and math than their non-disabled peers.

Table 4-21. Reading achievement gain scores and solutions for fixed effects

Effect	Estimate	Std Error	DF	t Value	Pr>ltl
School Type					
6-8 (Type 2)	-36.7386	9.8510	47.25	-3.73	0.0005
K-8 (Type 4)	0	.	.	.	.
Sex					
Female	-28.5461	3.8842	11807	-7.35	<0.0001
Male	0	.	.	.	.
Race/Ethnicity					
Asian	34.9466	14.1706	11818	2.47	0.0137
Black	-16.4223	7.2051	9741	-2.28	0.0227
Hispanic	5.3309	6.3039	11743	0.85	0.3978
Am Indian/Alaskan	119.5200	56.1299	11789	2.13	0.0332
Multi-Racial	20.7691	16.0838	11416	1.29	0.1966
White	0	.	.	.	.
Lunch Status					
Free	-17.6038	7.1071	11806	-2.48	0.0133
Reduced	0	.	.		.
None	-9.4812	7.4334	11815	-1.28	0.2022
LEP Status					
Current	80.4559	9.4029	11735	8.56	<0.0001
Former	4.3163	4.9009	11350	0.88	0.3785
None	0	.	.	.	.
ESE Status					
No	27.7647	6.4613	11817	4.30	<0.0001
Yes	0	.	.	.	.
Gifted Status					
No	11.3103	5.4500	11751	2.08	0.0380
Yes	0	.	.	.	.
School Level Data					
Free/Red Lunch Rate	-0.2976	0.3020	56.67	-0.99	0.3286
Minority Rate	0.2901	0.4091	51.41	0.71	0.4815

Table 4.21. Continued

Effect	Estimate	Std Error	DF	t Value	Pr>ltl
School Implementation Lvls					
Interdisciplinary Teams	0.7036	5.4339	45.52	0.13	0.8975
Common Planning	-4.3839	4.8014	49.32	-0.91	0.3657
Exploratory	2.2938	6.4531	48.99	0.36	0.7238
Advisory	3.0051	3.6104	47.21	0.83	0.4094
Heterogeneous Groups	3.4475	4.8681	44.48	0.71	0.4825
Looping	1.3810	4.9480	52.29	0.28	0.7813

Table 4-22. Math achievement and solutions for fixed effects

Effect	Estimate	Std Error	DF	t Value	Pr>ltl
School Type					
6-8 (Type 2)	-45.2159	11.8957	46.16	-3.80	0.0004
K-8 (Type 4)	0	.	.	.	.
Sex					
Female	25.0068	2.7525	11786	9.09	<.0001
Male	0	.	.	.	.
Race/Ethnicity					
Asian	16.2300	10.0488	11800	1.62	0.1063
Black	-5.3343	5.1589	11565	-1.03	0.3012
Hispanic	-3.0273	4.4774	11817	-0.68	0.4990
Am Indian/Alaskan	-58.4134	39.7608	11777	-1.47	0.1418
Multi-Racial	-1.9013	11.4485	11804	-0.17	0.8681
White	0	.	.	.	.
Lunch Status					
Free	-4.3487	5.0431	11810	-0.86	0.3885
Reduced	0	.	.	.	.
None	8.7785	5.2691	11793	1.67	0.0957

Table 4-22. Continued

Effect	Estimate	Std Error	DF	t Value	Pr>ltl
LEP Status					
Current	50.2181	6.6783	11817	7.52	<.0001
Former	3.3432	3.4897	11799	0.96	0.3381
None	0	.	.	.	.
ESE Status					
No	32.1575	4.5826	11803	7.02	<.0001
Yes	0	.	.	.	.
Gifted Status					
No	-12.4432	3.8700	11816	-3.22	0.0013
Yes	0	.	.	.	.
School Level Data					
Free/Red Lunch Rate	0.08205	0.3530	49.89	0.23	0.8171
Minority Rate	-0.4527	0.4861	48	-0.93	0.3564
School Implementation Lvls					
Interdisciplinary Teams	2.7959	6.5825	46.13	0.42	0.6730
Common Planning	3.6393	5.7419	47.33	0.63	0.5293
Exploratory	-13.2348	7.7239	47.33	-1.71	0.0932
Advisory	-3.1367	4.3416	46.95	-0.72	0.4736
Heterogeneous Groups	-11.3787	5.9240	45.64	-1.92	0.0610
Looping	1.9873	5.8244	49.7	0.34	0.7344

Table 4-23. Type III Tests of Fixed Effects for reading achievement gain scores.

Effect	Num DF	Den DF	F Value	Pr>F
School Type	1	47.25	13.91	0.0005
Sex	1	11807	54.01	<.0001
Race/Ethnicity	5	10335	5.09	0.0001
Free/Reduced Lunch Status	2	11763	3.66	0.0258
LEP Status	2	11588	37.87	<.0001
ESE Status	1	11817	18.46	<.0001
Gifted Status	1	11751	4.31	0.0380
School Free/Reduced Lunch Rate	1	56.67	0.97	0.3286

Table 4-23. Continued

Effect	Num DF	Den DF	F Value	Pr>F
School Minority Rate	1	51.41	0.50	0.4815
Interdisciplinary Teaming	1	45.52	0.02	0.8975
Common Planning	1	49.32	0.83	0.3657
Exploratory Courses	1	48.99	0.13	0.7238
Advisory	1	47.21	0.69	0.4094
Heterogeneous Grouping	1	44.48	0.50	0.4825
Looping	1	52.29	0.08	0.7813

Table 4-24. Type III Tests of Fixed Effects for math achievement gain scores.

Effect	Num DF	Den DF	F Value	Pr>F
School Type	1	46.16	14.45	0.0004
Sex	1	11786	82.54	<.0001
Race/Ethnicity	5	11644	1.38	0.2282
Free/Reduced Lunch Status	2	11809	7.53	0.0005
LEP Status	2	11807	29.03	<.0001
ESE Status	1	11803	49.24	<.0001
Gifted Status	1	11816	10.34	0.0013
School Free/Reduced Lunch Rate	1	49.89	0.05	0.8171
School Minority Rate	1	48	0.87	0.3564
Interdisciplinary Teaming	1	46.13	0.18	0.6730
Common Planning	1	47.33	0.40	0.5293
Exploratory Courses	1	47.33	2.94	0.0932
Advisory	1	46.95	0.52	0.4736
Heterogeneous Grouping	1	45.64	3.69	0.0610
Looping	1	49.7	0.12	0.7344

Summary

This study examined the relationship between grade configuration, reading and math gains, and model practices for sixth grade students in school districts with

enrollments over 100,000. Two types of grade configuration were studied for middle level students: K-8 schools and 6-8 middle schools. Reading and math gains calculated using the difference of FCAT DSS from the 2010 and 2011 administration for each student in the study. The six identified model practices included interdisciplinary teaming, common teacher planning, heterogeneous student grouping, exploratory courses, student advisory periods, and looping. The implementation of each practice was determined by self-ratings via survey of staff members within each of the schools.

Four general hypotheses were developed to test those relationships. The findings of this study reveal that there was no relationship between the implementation of any of the model practices and student achievement gain scores in reading and math. There was one difference in the implementation of the model practices, with K-8 schools reporting a higher rate of implementation of interdisciplinary teaming than their colleagues in 6-8 configured middle schools. There were no other significant differences in the implementation of model practices and grade configuration. There were significant differences in both reading and math gain scores by configuration of the school, with K-8 students having significantly greater gains. Finally, when the combined effects of grade configuration and model practice implementation level were compared to student achievement gain scores, there were no significant differences found, other than grade configuration alone, as previously stated. The study also revealed that other effects were correlated with achievement gain scores including student sex, LEP status, free lunch status, gifted status, race/ethnicity, and ESE status.

CHAPTER 5
CONCLUSIONS

Research has offered inconclusive results concerning the best organizational structure for early adolescents. Those favoring the middle school design believe that early adolescents need a specially designed school that best meets their unique developmental needs. Other educators, however, argue that the transition that occurs from fifth to sixth grade happens at a critical period in an adolescent's development, and believe that middle school students are better served by remaining in the stable setting that a K-8 design can provide.

Although there is some research regarding the relationship between the K-8 grade configurations and student achievement, there is little research regarding this configuration on students in large urban districts, because until recently most of the K-8 schools were either private/parochial or located in more rural areas of the country. Despite the lack of research, many urban school districts are eliminating or reducing middle schools in favor of the K-8 configuration. As this K-8 trend gains momentum in urban areas of the country, it has become more feasible to study the relationship between school configurations, implementation of those practices that middle school educators advocate, and student achievement for students that may be considered more at risk.

The purpose of this study was to compare the academic achievement levels in reading and mathematics of sixth grade students enrolled in K-8 urban schools to those of students who attend a traditional 6-8 middle school. In addition, the study measures the degree of implementation of exemplary practices determined by the National Middle School Association (NMSA, 1982; NMSA, 1995) for the two grade configurations in

relation to sixth grade student achievement. Finally, this study determines if any of these practices are predictive of student achievement in relation to the two grade configurations for the population studied.

Summary of Results

This research studied a population of 12,727 sixth grade students and 196 middle level educators from 32 K-8 schools and 32 6-8 middle schools. All schools were located within 4 large urban districts located in the southeast United States. To meet the study qualifications, the districts had to have over 100,000 students enrolled during the 2010-2011 school year, and they must also have had combination schools that were both non-charter and non-magnet that housed students in grades kindergarten through eight. Of the seven large districts within the identified state, only four districts had K-8 schools that fit these criteria.

Using survey data from educators within the schools and student demographic and performance data provided by the districts, the four null hypotheses were tested. It is important to note that increased data requirements in this new age of accountability have created a strain on the human resources within the respective research and evaluation divisions of large districts, making external requests for data extremely difficult to fulfill.

With respect to the level of implementation of the model practices of interdisciplinary teaming, common teacher planning, heterogeneous grouping, advisory groups, exploratory courses, and looping, there were no significant differences in sixth student performance in reading or mathematics on the Florida Comprehensive Achievement Test. There was, however, a significant difference in the reported level of implementation of interdisciplinary teaming, with the K-8 educators indicating a higher

level of implementation. There were no differences in levels of implementation of any of the remaining model practices.

Next, sixth grade performance data on the state assessment in reading and math were compared to determine if there were differences by school grade configuration. This test revealed significant student performance differences, with sixth grade students in K-8 schools performing significantly better in both reading and math. When student performance data was compared by both level of implementation of model practices and grade configuration, only grade configuration was significant with respect to student performance.

The following research questions were addressed in this study.

1. Is there a relationship between any of the exemplary practices identified by NMSA/AMLE, including (a) interdisciplinary teaming, (b) common teacher planning time, (c) heterogeneous grouping, (d) student advisory, (e) exploratory courses, and (f) looping, and student achievement – as measured by student gains on the Florida Comprehensive Tests of Achievement Sunshine State Standards (FCAT-SSS) assessment system – for sixth grade students in K-8 and 6-8 middle schools in large urban school districts, when controlling for SES and minority rate?

From a group of 12,727 sixth grade students, gain scores were computed from the 2010 and 2011 FCAT Developmental Scale Scores in both reading and math. The degree of implementation of each of the six identified practices was determined by educator survey from administers, academic coaches, and instruction staff within each of the schools, with 196 educators responding (72.6% response rate). Nonparametric correlations using Spearman's rho with 2-tailed significance at the .05 level were used to determine no significant relationships between any of the model practices with reading or math gain scores. Additionally, a linear regression test was performed with each of the model practices as the dependent variable and school-level factors entered

as the independent variables. The only significant predictors found were a negative relationship between interdisciplinary teaming and school sixth grade enrollment size, a positive relationship between common planning and school ESE rate, a negative relationship between exploratory courses and minority rate, and a positive relationship between looping and minority rate. Since none of the model practices indicate a significant relationship with reading or math gain scores, the null hypothesis was retained. The results of hypothesis 1 are summarized in Table 5-1.

Table 5-1. Summary of findings for hypothesis 1*

Model Practice	Achievement Area	p=	Status of Null Hypothesis 1
Interdisciplinary Teaming	Reading	0.139	Retained
	Mathematics	0.286	Retained
Common Planning	Reading	0.845	Retained
	Mathematics	0.329	Retained
Heterogeneous Grouping	Reading	0.399	Retained
	Mathematics	0.583	Retained
Student Advisory	Reading	0.057	Retained
	Mathematics	0.520	Retained
Exploratory Courses	Reading	0.540	Retained
	Mathematics	0.121	Retained
Looping	Reading	0.763	Retained
	Mathematics	0.260	Retained

*Null hypothesis 1 states that there is no relationship between the implementation of exemplary middle level practices and student achievement gains as measured by the FCAT SSS Developmental Scale Score for sixth grade students in an urban school district when controlling for school demographic factors of school size, grade level size, minority rate, SES rate, LEP rate, and ESE rate.

Question 2: Are there differences in levels of implementation of NMSA/AMLE-identified exemplary practices in urban K-8 configured schools when compared to 6-8 configured middle schools?

Educators from 32 6-8 configured schools and 28 K-8 schools responded to a survey regarding the level of implementation of each of the model middle-level practices within their schools. A t-Test for independent samples was used to compare the means of the self-reported implementation levels for K-8 and 6-8 schools. Of the practices, only interdisciplinary teaming had significantly different levels of implementation, with the K-8 schools reportedly implementing the practice more fully. Therefore, all null hypotheses were retained except for $Ho_2$1, regarding differences in the implementation of interdisciplinary teaming, which was rejected. A summary of the results of hypothesis 2 are found in Table 5-2.

Table 5-2. Summary of findings for hypothesis 2*

Model Practice	p=	Status of Null Hypothesis 2
Interdisciplinary Teaming	0.010	Rejected
Common Planning	0.087	Retained
Heterogeneous Grouping	0.712	Retained
Student Advisory	0.616	Retained
Exploratory Courses	0.442	Retained
Looping	0.638	Retained

*Null hypothesis 2 states that there are no significant differences in the implementation of exemplary middle level practices in schools configured as K-8 compared to traditional middle schools with a 6-8 grade configuration.

Question 3: Are there differences in academic achievement in reading and mathematics for sixth grade public school students in K-8 configured schools when compared to sixth grade students in 6-8 configured middle schools, as measured by the Florida Comprehensive Tests of Achievement Sunshine State Standards (FCAT-SSS) assessment system?

To test this question, differences in two years of reading and math developmental scale scores from 2010 and 2011 were calculated for 3,535 sixth grade students in K-8 schools and 9,152 students in schools with a 6-8 configuration. T-Tests for independent samples were calculated to compare the achievement gain means by school type at the

.05 level of significance. Both reading and math achievement gain scores were found to be significantly higher in the schools with the K-8 grade configuration, therefore the null hypotheses were rejected for both reading and math. The results of hypothesis 3 are summarized in Table 5-3.

Table 5-3. Summary of findings for hypothesis 3*

Subject	p=	Status of Null Hypothesis 3
Reading	<0.001	Rejected
Mathematics	<0.001	Rejected

* Null hypothesis 3 states that there are no significant differences in student achievement gains as measured by the FCAT SSS Developmental Scale Score for sixth grade students in a K-8 school compared to the same students in a traditional 6-8 middle school.

Question 4: Is there a relationship between the level of implementation of exemplary middle level practices and academic achievement as measured by the Florida Comprehensive Tests of Achievement Sunshine State Standards (FCAT-SSS) assessment system for sixth grade students enrolled in urban K-8 configured schools compared to similar students in 6-8 middle schools?

This research question tested whether the combined factors of grade configuration and implementation of exemplary middle level practices in each of the two sixth grade settings were predictive of student achievement. Achievement gain scores for 3,535 sixth grade students in K-8 schools and 9,192 sixth grade students in 6-8 schools were compared using GLIMMIX, a general linear mixed model in SAS®. Scores were compared by school configuration and level of implementation of each of the model practices to determine if there was a significant relationship between factors. Type III Tests of Fixed Effects showed that although several of the school and student demographic factors, including school configuration tested in question 3, related significantly to student achievement gain scores, none of combinations between grade

configuration and model practices were statistically significant. The findings for hypothesis 4 are summarized in Table 5-4.

Table 5-4. Summary of findings for hypothesis 4*

Effect	Subject	p=	Status of Null Hypothesis
Interdisciplinary Teaming	Reading	0.8975	Retained
	Math	0.6730	Retained
Common Planning	Reading	0.3657	Retained
	Math	0.5293	Retained
Exploratory Courses	Reading	0.7238	Retained
	Math	0.0932	Retained
Advisory	Reading	0.4094	Retained
	Math	0.4736	Retained
Heterogeneous Grouping	Reading	0.4825	Retained
	Math	0.0610	Retained
Looping	Reading	0.7813	Retained
	Math	0.7344	Retained

*Hypothesis 4 states that there is no relationship between exemplary middle school practices and student achievement gains as measured by the FCAT SSS Developmental Scale Score for sixth grade students who attend K-8 schools implementing exemplary middle level practices compared to the same students attend traditional middle schools implementing the practices at the same level.

Discussion

The purpose of this research was to identify practices and grade configurations that may assist in increasing the academic achievement for middle level students in an urban setting. The schools were specifically chosen from large urban school districts to secure a representative sample of students in each of the two grade configurations that provided the typical demographics of students who may be considered more at risk. It was hoped that this research could provide insight for practices that might be effective for typically low performing middle schools. To that end, this research provides several important implications for application in middle level education.

Grade Level Configuration

In the initial analysis, it would appear that reconfiguring to a K-8 design may have some merit, at least for sixth grade student population studied in this research. Other studies have found similar increased student achievement in schools with broader grade spans (Alspaugh, 1995; Frankin & Glascock, 1998; Offenberg, 2001; Tucker & Andrada, 1997; Wren, 2003). Because of other limiting factors in this research, however, there is little evidence to suggest that the increased student achievement gains were due, either wholly or in part, to the grade configuration of the school.

One of the limiting factors in this study was the SES profile of the K-8 school population. The districts chosen for this research are among the largest public school systems in the nation and represent a diverse body of students and teachers. By selecting these urban school districts, it was expected that the K-8 sample would be reflective of the demographics of the district as a whole.

In the study, each K-8 school was matched to a 6-8 middle school as closely as possible by free/reduced-price lunch and minority rates. This was a difficult process, however, since many of the K-8 schools had much lower free/reduced-price lunch rates than the middle schools within the same district. Even though there were many more 6-8 configured schools, the majority of the middle schools had much higher poverty rates than their K-8 counterparts.

To better illustrate this disparity, free and reduced-price lunch rates from one of the districts were examined by grade configuration of the school. There was a huge difference in the percentage of students on free or reduced-price lunch in the K-8 schools as compared to the students in the schools with a 6-8 grade configuration. For example, 92% of the middle schools in this district had more than half of the students on

free or reduced-price lunch, compared to only 54% of the K-8 schools. In comparing the number of Title 1 schools within the same district, 88% of the middle schools qualified for Title 1 services, but only 46% of the K-8 schools had Title 1 eligibility.

The intention of this study was to provide insight into promising practices for middle school students in urban areas who may be considered more at risk. Although the achievement gain scores in this study were controlled for SES and race/ethnicity, it appears that there is a differential distribution of K-8 schools that corresponds with socio-economic patterns. Because academic achievement is related most closely to SES status, and the K-8 schools in this study seem to be disproportionately located in more affluent sections of metropolitan areas, generalizing the results to other large urban districts, or even other schools within the same district, would be a mistake.

It is also not clear whether these gains will remain steady over the course of the three years of middle school or if the gains will begin to even out as the middle school years progress. As Abella (2005) found in his research of a large public school district in the southeast, the gains the K-8 schools enjoyed in sixth grade had nearly evened out at the completion of the students' eighth grade school year.

The student achievement differences were also significantly related to grade-level size, with students in schools with smaller sixth grades faring better in reading gains than their peers with larger sixth grade classes. The sixth grade-level sizes for the K-8 schools in this study were considerably smaller than the middle schools, which is consistent with other research on grade span configuration (Ecker, 2002; Renchler, 2002). Earlier research also demonstrated a relationship between smaller grade-level

sizes and increased academic achievement (Bickel & Howley, 2000; Mertens et al., 2001).

The K-8 configuration draws students from 9 different grade levels (10 if the school includes prekindergarten), so grade level sizes need to be kept to approximately 100 to maintain school capacities of around 900 students. In order for a middle school with three grade levels to achieve the same enrollment, each grade level would need approximately 300 students. This means that the middle schools have grade levels approximately three times the size of K-8 schools. If student achievement is related to grade level size, the K-8 model would have an inherent advantage.

There are many factors that may contribute to increased achievement in schools with smaller grade levels. Because of their smaller grade level size, the K-8 schools may configure their schedules differently. For example, K-8 schools may use two-teacher teams more frequently than 6-8 schools. Often times, this two-teacher team arrangement consists of a reading and a math teacher, who typically split of the remaining subjects between them based on interest, certification or expertise. This may result in teaching time that is more focused on reading and math, which would account for the higher performance in those accountability areas (Blair, 2007).

Because of the differences in grade level size and the differential placement of K-8 schools in more affluent areas of the school districts, the results in this study provide inconclusive evidence regarding the relationship between student achievement and grade configuration.

Exemplary Middle Level Practices

With respect to the implementation level of model practices, there is no real evidence to support that the six identified practices contribute to student achievement

gains. In addition, there is very little difference in the level of implementation of each of the practices between the grade level configurations.

It is interesting to note that one of the arguments for maintaining the sixth through eighth grade middle school model is the ability to implement developmentally appropriate practices. In practice, however, the K-8 model reports a higher overall level of implementation of those practices than their middle school colleagues, although most of those differences are not significant, and are not related to student achievement.

In the 1980s when the middle school movement was in full swing, the emphasis for middle schools was on building relationships. The practices that were put in place during those years were designed to create a greater sense of belonging and cohesiveness for early adolescents during this time of physical and emotional transition. While quality instruction was still a priority, developing quality relationships with students was considered equally important.

With the new age of accountability, however, there is a laser-like focus on student achievement at every grade level, and middle level students are not given a pass because they are in a stage of transition. While educators are certainly still concerned about the emotional well-being of their students, the bottom line is proficiency in the accountability areas on the state tests. The implementation of double blocks of courses intended to boost test scores has meant that many exploratory programs have gone by the wayside. Time spent in advisory programs has been exchanged for instruction in remedial math. Heterogeneous grouping has been replaced by reading groups sorted by proficiency level. Principals today are faced with tough choices regarding how to best spend their most valuable resource – instructional time.

Because of the increased pressures of accountability, most school leaders are investing in those areas that bolster student achievement rather than their self-esteem.

One point worth noting is that level of implementation was determined by a survey of the educators within the schools. Although the survey instrument provides definitions for each of the practices, there may be inconsistencies between educators regarding what “full implementation” looks like in a school. Because of these differences in understanding or perception, some educators may have under- or over-rated the implementation of the practices within their respective schools. To develop a more accurate, consistent picture of the degree of model practice implementation, a team of experts would need to personally visit each school for a period of time and evaluate each practice on a consistent rubric. As other grade levels begin to adopt these practices, particularly in the high school small learning communities, it may be a worthwhile pursuit for further investigation.

Limitations of the Research

There were several limitations to this research. The study was limited to the Florida Comprehensive Achievement Test SSS data in reading and mathematics reported to the state of Florida for the 2009-2010 and 2010-2011 school years. Although the researcher recognizes that sixth graders can be educated in a variety of grade-level configurations, this study was limited to two configurations: (a) sixth grade students in schools with sixth through eighth grade, and (b) pre-kindergarten or kindergarten through eighth grade configurations.

In addition, the study was limited to a comparison of public K-8 and middle schools in urban districts larger than 100,000 students in the state of Florida participating in the state accountability system and may or may not be representative of

other K-8 and middle schools in the United States. The study is delimited to the data provided by the research and evaluation departments in each of the identified districts of the participating schools. Only middle schools and K-8 schools identified by the Florida Department of Education (FLDOE, 2011) were included in this study because an ample number of K-8 and comparable middle schools were available in that region, and all students took identical achievement tests. Because they may represent a special population, K-8 and middle schools identified as charter schools, magnet schools, or schools of choice were not included in this study.

The level of implementation of each of the model practices was determined by a self-assessment via survey of a sampling of educators within each of the sample schools. Information from educators within the school about implementation of practices was delimited to a single set of questions related to degree of implementation provided in an online or paper survey. Although results were averaged by several participants within the school to get a better degree of accuracy, the extent to which the survey responses by individual participants in each of the respective schools represent the actual practices within the schools may limit the quality of the findings.

The study was further limited to only those students who had achievement scores for both the 2009-2010 and the 2010-2011 school years. In addition, the study only included students in the K-8 design who had achievement data for the previous school year within the same K-8 school. Therefore, this study fails to account for the achievement of students who transfer to or from different school systems. Schools with high mobility rates would tend to confound the number of school-to-school transitions. Achievement scores were limited to gains from fifth to sixth grade only. The study was

based on the assumption that the student achievement data were appropriate measures for comparing academic achievement of middle schools and K-8 schools. A further assumption was that comparable kind and quality of curriculum and instruction were present in both configurations of schools.

Implications

This study utilized data from the district, school, and individual student levels. Because of the layered nature of the data, this research provides several interesting implications at all three levels of accountability.

Implications for Students

The practices designed to ease the transition from elementary to middle school do not appear to contribute to increased achievement outcomes for students. For schools that abandon these practices, either due to limited resources or lack of effectiveness in terms of student achievement, it will be interesting to note other effects on students. Outcome measures such as student attendance and disciplinary infractions may be areas affected as a result.

The elimination of a school-to-school transition inherent in the K-8 design has uncertain effects on student achievement. Special groups such as students with disabilities, students in high-poverty areas, or limited English-proficient students may benefit from the continuity in educational services. Focused research on special populations within the two configurations may provide additional insight on the advantages and disadvantages of each design.

An examination of students who stay in public school and those who choose to leave may account for differences in aggregate student performance. Achievement data that compares the students who remain in public school and those that leave after fifth

grade may provide additional insight into the dip in student achievement that typically occurs in the year after the elementary-to-middle school transition.

Implications for Schools

Due to accountability legislation, schools have been forced to scrutinize the effectiveness of their practices like never before. Exploratory courses and advisory periods may be luxuries that schools can no longer afford, in terms of both time and money. In many schools, students in need of intensive remediation in reading and math are now provided specialized instruction that formerly would have been labeled as tracking. Common teacher planning is being replaced with departmentalized professional learning communities designed to increase student learning in state accountability areas.

Because there is no evidence that these model practices lead to increased student learning, school leaders will need to make hard choices regarding which practices to abandon and which to retain. It will be interesting to note the research in high schools over the next decade, as they move to smaller learning communities and begin to implement many of these same practices.

Grade configuration also has important implications for instruction at the school level. The certifications of the teachers within each of the grade level configurations, the ability to recruit and retain quality teachers, and the organization of the teachers within the schools all play an important role in outcomes for students.

One area that may warrant further investigation is teacher certification in the two grade configurations. Typically, teachers in elementary schools have certifications in grades K-6, while middle school teachers have secondary certifications in subject areas. Highly Qualified Teacher legislation has imposed additional mandates on teacher

certification. Because the majority of the children in K-8 schools are elementary students, it would be reasonable to assume that the majority of teachers have elementary certifications. To increase flexibility of teacher assignment within the school, K-8 schools may hire a greater percentage of teachers that have both elementary education and secondary subject area certifications. This may be an advantage for the K-8 design.

Teacher recruitment and retention may be another area of difference for the two grade configurations. If K-8 schools are disproportionately placed in more affluent areas, their ability to attract and retain high quality teachers may be enhanced. As an added advantage, elementary schools have historically had an easier time of recruiting teachers than middle schools. In addition, teachers may choose to stay longer in K-8 schools. Further research regarding the number and quality of applicants to K-8 schools and their tenure within those schools, in comparison to middle schools may reveal patterns of interest.

Finally, there may be differences in organizational structures of the two school configurations. With smaller grade levels, K-8 schools may opt for two- or three-teacher teams with a focus on core academic areas. Fewer classroom transitions during the day could lead to increased instructional time that ultimately results in increased student achievement. Areas of interest for further research include amount of time focused on instruction by grade configuration, instructional time disaggregated by accountability areas, and differences in grade level teacher configurations.

Implications for School Districts

As stated previously, there seems to be a differential distribution for K-8 school placement that corresponds to SES rates. It would appear that K-8 schools are being

placed or reconfigured in more affluent areas within the metropolitan regions. This could be happening for a variety of reasons.

New schools are often built to relieve overcrowding in high growth suburban areas. In this era of extremely limited resources, it would make more financial sense to build a new school configured to the K-8 design, rather than retrofit an existing facility. The K-8 reconfiguration could simultaneously relieve overcrowding in both elementary and middle schools of the adjacent boundary. Because they draw a wider span of grade levels, K-8 schools are more typically located within neighborhoods and are closer to student homes, which may relieve some of the transportation costs associated with the larger schools that bus students from a wider boundary.

Districts may also be using the K-8 configuration to keep students in public schools longer. While many parents express satisfaction with their neighborhood elementary school, quite often they are less enthusiastic about the middle school to which their child is assigned. Elementary schools are often smaller and closer to the homes of their students. Because middle school grade level sizes are approximately three times larger than the K-8 model, they typically have much broader school boundaries that encompass two or three elementary schools.

During the transition from elementary to middle school, some parents are choosing smaller private schools, parochial schools, or even choosing to home-school their children. Because there are associated costs with each of these choices, this option is not available to all parents. Although charter schools are a cost-free option for all families, at this time there are very few quality charter schools available. Of the high

quality charters, admission is quite competitive, further limiting the options for low-income families.

In contrast, the narrower K-8 boundaries allow children to stay in the neighborhood schools for an additional three years. This proximity leads to greater personalization and invites increased parental participation. In addition, the natural transition between fifth and sixth grade is eliminated, which has been an historic decision-point for parents who choose to leave public school. This makes sixth grade just another year at the neighborhood school. Parents who are already satisfied with the school and have had positive experiences during their child's elementary years are less likely to choose to leave.

Parental pressure may also be a contributing factor to the disproportionate distribution of K-8 schools in more affluent areas. Parents in mid-to-high socioeconomic neighborhoods are better prepared to navigate the bureaucracy of large school districts and are more likely to collectively advocate for their schools. Particularly in hard economic times, when middle class budgets are tight and private school tuition may be an uncomfortable stretch to family finances, the K-8 configuration is an attractive option for parents. By creating K-8 schools, districts may be stemming the exodus from public to private schools for children from middle- and high-income families. Since academic achievement is closely tied to socioeconomic factors, this could provide a boost for districts struggling to meet accountability targets.

If the intended purpose of moving to the K-8 design is increased student achievement, districts need to be mindful of where these schools are placed. Because of their narrower boundaries, K-8 schools can add to segregation and have the

appearance of being selective schools of choice in more affluent communities. If the configuration of a school has the potential of raising academic achievement for students, then those schools should be placed in the areas of greatest need. Further study regarding district policies, procedures, and motivations for school configuration and placement would shed light on this complicated area.

Summary

There are a number of large urban school systems throughout the county that are moving or planning to move from the middle school 6-8 design to the K-8 configuration schools (Look, 2002a; OPPAGA, 2005; Pardini, 2002; Patton, 2005). The K-8 grade configuration may be a popular trend in middle level education that may provide some lift in terms of student achievement, however that increase may well be due to other factors such as grade level size or socioeconomic differences rather than the configuration of the school.

Regarding the model practices of interdisciplinary teaming, student advisory, common teacher planning, exploratory courses, heterogeneous grouping, and looping, there was little difference in the level of implementation between the two grade configurations. There is also no evidence that any of the model practices studied in this design lead to increased student academic achievement. While these practices may be important in providing support to students during their transitional years, of even greater importance to schools in this era of accountability is their impact on student achievement. Greatly reduced budgets and pressure to perform will continue to have an impact on how schools spend their time and align their resources.

APPENDIX A
UNIVERSITY OF FLORIDA IRB CONSENT

UF | Institutional Review Board
UNIVERSITY of FLORIDA

PO Box 112250
Gainesville, FL 32611-2250
352-392-0433 (Phone)
352-392-9234 (Fax)
irb2@ufl.edu

January 14, 2010

TO: Dana Kritznar

FROM: Ira S. Fischler, PhD; Chair
University of Florida
Institutional Review Board 02

SUBJECT: **Exemption of Protocol #2010-U-0015**
Rethinking Middle Level Education: The Effects of Grade Configuration and Model Practices on Student Achievement for Sixth Grade Students in Large Urban School Districts

SPONSOR: None

Because this protocol does not involve the use of human participants in research, it is exempt from further review by this Board in accordance with 45 CFR 46. Human participants are defined by the Federal Regulations as living individual(s) about whom an investigator conducting research obtains (1) data through intervention or interaction with the individual; or (2) identifiable private information. The Board has also exempted the study based on the following category:

> *45 CFR 46.101(b(4) Research involving the collection or study of existing data, documents, records, pathological specimens, or diagnostic specimens, if these sources are publicly available or if the information is recorded by the investigator in such a manner that subjects cannot be identified, directly or through identifiers linked to the subjects.*

Should the nature of your study change or if you need to revise this protocol in any manner, please contact this office before implementing the changes.

IF:dl

APPENDIX B
DISTRICT CONSENTS TO CONDUCT RESEARCH

dcps
Duval County Public Schools

Instructional Research and Accountability
Timothy R. Ballentine, Executive Director
1701 Prudential Drive
Jacksonville, FL 32207
(904) 390-2976
www.duvalschools.org/reseval

August 4, 2011

Dana Kriznar

Dear Mrs. Kriznar:

Your request to conduct research in Duval County Schools has been approved. This approval applies to your project *Rethinking Middle Level Education: Effects of Grade Configuration and Model Practices on Sixth Grade Achievement* in the form and content as supplied to this office for review. Any variations or modifications to the approved protocol must be cleared with this office prior to implementing such changes.

Participation in studies of this nature is voluntary on the part of principals, teachers, staff, and students. Our approval does not obligate any principal, teacher, staff member, or student to participate in your study. **A signed copy of this letter must accompany any initial contact with principals, teachers, parents, and students.**

Our approvals for research run through June 30th of each school year. If your research will extend beyond that date, you will have to resubmit an application at the appropriate time. You will be required to supply copies of signed consent and assent forms at that time. If there have been no changes to the approved protocol you may refer to the previously submitted paperwork.

The Chief Officer of Human Resources has advised that neither you nor your students/colleagues are to be in any Duval County Public School nor have any contact with students until you have gone through the fingerprinting process at DCPS. Please schedule an appointment with the School Police at 904-858-6100 and bring a copy of this approval letter with you to your appointment.

Upon completion of the study, it is customary to forward a copy of the finished report to the Office of Instructional Research and Accountability, 1701 Prudential Dr., rm. 327, Jacksonville, Florida 32207. This office also shall be notified, in advance, of the publication of any reports/articles in which Duval County is mentioned by name.

If you have questions or concerns, please don't hesitate to call me or Dawn Botkin at 390-2976.

Sincerely,

Timothy R. Ballentine

Timothy Ballentine
Executive Director
Instructional Research and Accountability

Hillsborough County
PUBLIC SCHOOLS
Excellence in Education

September 21, 2011

Ms. Dana Kriznar

Dear Ms. Kriznar:

The Hillsborough County Public School district has agreed to participate in your research proposal, *rethinking Middle Level Education: The Effects of Grade Configuration and Model Practices on Student Achievement for Sixth Grade Students in Large urban School Districts.* A copy of this letter **MUST** be presented to all participants at each school to assure them your research has been approved by the district. Your **approval number is RR1112-273**. You must refer to this number in all correspondence. Approval is given for your research under the following conditions:

1) Participation by the schools is to be on a voluntary basis. That is, participation is **NOT MANDATORY** and you must advise **ALL PARTICIPANTS** that they are not obligated to participate in your study.

2) If a principal agrees the school will participate, it is up to you to find out what rules the school has for allowing people on campus and you must abide by the school's check-in policy. You will **NOT BE ALLOWED** on any school campus without first following the school's rules for entering campus grounds.

3) You must notify us if other schools are added to your sample.

4) Confidentiality must be assured for all. That is, **ALL DATA MUST BE AGGREGATED SUCH THAT THE PARTICIPANTS CANNOT BE IDENTIFIED**. Participants include the district, principals, administrators, teachers, support personnel, students and parents.

5) Research **approval does not constitute the use of the district's equipment, software, email, or district mail service**. In addition, requests that **result in extra work** by the district such as data analysis, programming or assisting with electronic surveys, **may have a cost borne by the researcher**.

6) This approval **WILL EXPIRE ON 12/15/2011**. You will have to contact us at that time if you feel your research approval should be extended.

7) A copy of your research findings must be sent to us for our files an dmust be submitted ot his department **before any data is published in any form**.

SERVE VOLUNTEER FORMS/FINGERPRINTING:
Your proposal indicates that you will not come into contact with any students. IF THIS CHANGES, YOU MUST contact us for further instructions.

Good luck with your endeavor. If you have any questions, please advise.

Sincerely,

Theodore Dwyer
Manager of Evaluation
Assessment and Accountability

TD/drs
cc:

Raymond O. Shelton School Administrative Center • 901 East Kennedy Boulevard • Tampa, Florida 33602
School District Main Office: 813-272-4000 • P.O. Box 3408 • Tampa, Florida 33602 • website: www.sdhc.k12.fl.us
Assessment and Accountability Office: 813-272-4341 • Fax: 813-272-4340
e-mail: theodore.dwyer@sdhc.k12.fl.us

Miami-Dade County Public Schools

giving our students the world

Superintendent of Schools
Alberto M. Carvalho

Assessment, Research, and Data Analysis

September 16, 2011

Mrs. Dana Kriznar

Dear Mrs. Kriznar:

I am pleased to inform you that the Research Review Committee (RRC) of the Miami-Dade County Public Schools (MDCPS) has granted you approval for your request to conduct the study: "*Rethinking Middle Level Education: The Effects of Grade Configuration and Model Practices on Student Achievement for Sixth Grade Students in Large Urban School Districts*" in order to fulfill the requirement of your dissertation at the University of Florida.

The approval is granted with the following conditions:

1. Participation of the school targeted in this study is at the discretion of the principal. Please note that even with the approval of the RRC, it is still the responsibility of the Principal as the gatekeeper of the school to decide whether to participate or not. As stated in the Board rule, ***"... the principal of the individual school has the privilege of deciding if RRC-approved research will be conducted within his/her school."*** A copy of this approval letter must be presented/and or shared with the Principal of the targeted school.

2. The participation of all subjects (such as students, faculty, or staff) is completely **voluntary**.

3. The anonymity and/or confidentiality of all subjects must be assured.

4. The study will involve getting unidentified student achievement data.

5. Disruption of the school's routine by the data collection activities of the study must be kept at a minimum. Data collection activities must not interfere with the district's testing schedule or other school priorities and/or activities.

It should be emphasized that the approval of the Research Review Committee does not constitute an endorsement of the study. It is simply a permission to request the voluntary cooperation in the study of individuals associated with MDCPS.

Assessment, Research, and Data Analysis • 1450 N.E. Second Avenue • Suite 222 • Miami, FL 33132
305-995-7529 • 305-995-2691 (FAX) • www.dadeschools.net

The archival data that you are requesting may not be available or may not be easily acce4ssible. To that end, you may incur the cost to retrieve the archival data. Please contact Ms. Gisela Field, Administrative Director at 305-995-2943 to discuss your data request and determine cost and timelines.

It is your responsibility to ensure that appropriate procedures are followed in requesting an individual's cooperation, and that all aspects of the study are conducted in a professional manner. With regard to the latter, make certain that all documents and instruments distributed within MDCPS as a part of the study are carefully edited.

The approval number for your study is **1760**. This number should be used in all communications to clearly identify the study as approved by the Research Review Committee. The approval expires on **06/29/2012**. During the approval period, the study must adhere to the design, procedures and instruments which were submitted to the Research Review Committee.

Finally, as indicated in your application, please submit to the RRC an abstract of the research findings by **July, 2012.**

If there are any changes in the study as it relates to MDCPS, the RRC must be notified in writing. Substantial changes may necessitate resubmission of the request. Failure to notify me of such a change may result in the cancellation of the approval.

If you have any questions, please call me at 305-995-7529. On behalf of the Research Review Committee, I want to wish you every success with your study.

Sincerely,

Tarek Chebbi, Ed. D.
Chairperson
Research Review Committee

TC:bf

APPROVAL NUMBER: **1760**	APPROVAL EXPIRES: **06/29/2012**

Note: The researcher named in this letter of approval will be solely responsible and strictly accountable for any deviation from or failure to follow the research study as approved by the RRC. M-DCPS will NOT be held responsible for any claim and/or damage resulting from conducting this study.

Submit this form and a copy of your proposal to:
Accountability, Research, and Assessment
P.O. Box 271
Orlando, FL 32802-0271

Orange County Public Schools

RESEARCH REQUEST FORM

RECEIVED AUG 01 2011

Your research proposal should include:
- Project Title
- Purpose and Research Problem
- Instruments
- Procedures and Proposed Data Analysis

Requester's Name Dana Kriznar Date July 14, 2011

E-mail _____ Phone _____

Address _____
Street City, State Zip

Institutional Affiliation University of Florida

Project Director or Advisor Dr. Bernard Oliver Phone _____

Degree Sought: (check one) ☐ Associate ☒ Doctorate ☐ Bachelor's ☐ Not Applicable ☐ Master's ☐ Specialist

Project Title: Rethinking Middle Level Education: The Effects of Grade Configuration and Model Practices on Student Achievement for Sixth Grade Students in Large Urban School Districts

ESTIMATED INVOLVEMENT

PERSONNEL/CENTERS	NUMBER	AMOUNT OF TIME (DAYS, HOURS, ETC.)	SPECIFY SCHOOLS BY NAME AND NUMBER OF TEACHERS, ADMINISTRATORS, ETC.
Students	1000	0	Using existing FCAT data with masked student #
Teachers	25	0.25	Learning leaders in K-8 & 6-8 sample schools
Administrators	4	0.25	Principals in K-8 & 6-8 sample schools
Schools/Centers			
Others (specify)			

Specify possible benefits to students/school system: Identify the effects of the K-8 versus the 6-8 grade configuration on sixth grade student achievement; determine the extent to which middle level practices are implemented in the K-8 versus the 6-8 design; determine if any middle level practices in each configuration is predictive of student achievement gains for sixth grade students.

ASSURANCE

Using the proposed procedures and instrument, I hereby agree to conduct research in accordance with the policies of the Orange County Public Schools. Deviations from the approved procedures shall be cleared through the Senior Director of Accountability, Research, and Assessment. Reports and materials shall be supplied as specified.

Requester's Signature Dana Kriznar

Approval Granted: ☒ Yes ☐ No Date: 8-1-11

Signature of the Senior Director for Accountability, Research, and Assessment Vicki Courtwright

NOTE TO REQUESTER: When seeking approval at the school level, a copy of this form, signed by the Senior Director, Accountability, Research, and Assessment, should be shown to the school principal who has the option to refuse participation depending upon any school circumstance or condition. The original Research Request Form is preferable to a faxed document.

Reference School Board Policy GCS, p. 249

OCPS1044ARA (Revised 2/10)

APPENDIX C
MIDDLE LEVEL EDUCATOR SURVEY PARTICIPANT CONSENT FORM

Middle Level Education – Educator Survey

Dear Educator,

As part of my dissertation at the University of Florida, I am conducting a survey to determine the effects of the implementation of model middle level practices and grade configuration on student achievement. These questions were developed as part of a national survey conducted by the National Association of Secondary School Principals (NASSP) from the following resource:

> *Valentine, J.W., Clark, D.C., Hackman, D.G., & Petzko, V.N. (2002). A national study of leadership in middle level schools, volume 1: A national study of middle level leaders and school programs. Reston, VA: National Association of Secondary School Principals.*

You are being asked to participate in this short survey because you have been identified as a learning leader within your school. The survey consists of 28 questions and should take no longer than 10 minutes to complete. Your identity, your school, and your district will be kept confidential.

There are no anticipated risks, compensation, or other direct benefits to you as a participant in this survey. You are free to withdraw your consent to participate and may discontinue your participation in the survey at any time without consequence. If you have any questions about this research protocol, please contact me at or by phone at or my University of Florida faculty advisor, Dr. Bernard Oliver, at or by email at

Please sign and return this copy of the letter in the enclosed envelope. A second copy is provided for your records. By signing this letter, you agree to participate in this study and provide permission to report your responses anonymously in the final manuscript to be submitted to my faculty supervisor as part of the dissertation process. You may also complete this survey online at www.surveymonkey.com/s/MiddleLevelEducatorSurvey.

Sincerely,

Dana Kriznar

I have read the procedure described above for the Middle Level Educator survey. I voluntarily agree to participate in the survey and I have received a copy of this description.

_____ _____

Signature of Participant Date

I would like to receive a copy of the final manuscript. ___Yes ___No

APPENDIX D
MIDDLE LEVEL EDUCATOR SURVEY

UF UNIVERSITY of FLORIDA

Middle Level Education – Educator Survey

Dear Educator,

Thank you for agreeing to participate in this study to determine the effects of the implementation of model middle level practices and grade configuration on student achievement. These questions were developed as part of a national survey conducted by the National Association of Secondary School Principals (NASSP) from the following resource:

> *Valentine, J.W., Clark, D.C., Hackman, D.G., & Petzko, V.N. (2002). A national study of leadership in middle level schools, volume 1: A national study of middle level leaders and school programs. Reston, VA: National Association of Secondary School Principals.*

You are being asked to participate in this short survey because you have been identified as a learning leader within your school. The survey consists of 28 questions and should take no longer than 10 minutes to complete. Your identity, your school, and your district will be kept confidential.

There are no anticipated risks, compensation, or other direct benefits to you as a participant in this survey. You are free to withdraw your consent to participate and may discontinue your participation in the survey at any time without consequence. If you have any questions about this research protocol, please contact me at or by phone at or my University of Florida faculty advisor, Dr. Bernard Oliver, at or by email at . Once again, thank you for your participation.

Sincerely,

Dana Kriznar

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1. What is your gender?
   ① Female
   ② Male

2. What is your age?
   ① 20 - 29
   ② 30 - 39
   ③ 40 - 49
   ④ 50 - 59
   ⑤ 60 or older

3. What is your race? (Check all that apply.)
   ① African American
   ② American Indian/Alaskan Native
   ③ Asian/Pacific Islander
   ④ Caucasian/White
   ⑤ Hispanic
   ⑥ Other:_____

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4. How many years of experience in education do you current have (including this year)?
   ① First year
   ② 2 to 5 years
   ③ 6 to 10 years
   ④ 11 to 20 years
   ⑤ 21 to 30 years
   ⑥ More than 30 years

5. How many years (including this year) have you been at your current school?
   ① 1 or 2
   ② 3 to 5 years
   ③ 6 to 10 years
   ④ 11 to 19 years
   ⑤ 20 or more years

6. What best describes your primary position within the school?
   ① Principal
   ② Assistant Adminstrator
   ③ Classroom Teacher (including ESE)
   ④ Art, Music, PE, or Speech Teacher
   ⑤ Counselor
   ⑥ Academic Coach
   ⑦ Other:_____

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7. What grade level(s) are you currently teaching or most directly responsible (check all that apply)?
   ① Pre K - K
   ② Grades 1-2
   ③ Grades 3-4
   ④ Grade 5
   ⑤ Grade 6
   ⑥ Grade 7
   ⑦ Grade 8

8. What degrees do you have (check all that apply)?
   ① Bachelors in education
   ② Bachelors in another field
   ③ Masters in education
   ④ Masters in another field
   ⑤ Post-masters in education
   ⑥ Post-masters in another field
   ⑦ Other:_____

School Level Information

For questions 9-15, please indicate the degree to which you believe the middle level characteristics listed below are IMPORTANT to an instructionally effective middle level school.

Definitions:

① **No Importance** – Absence of this characteristic will not effect the quality of the school
② **Little Importance** – Absence of this characteristic will have little effect on the quality of the school
③ **Somewhat Important** – Presence of this characteristic adds to the quality of the school
④ **Important** – Presence of this characteristic is of importance to the quality of the school
⑤ **Very Important** – Presence of this characteristic is critical to school quality

	① None	② Little	③ Partia	④ Important	⑤ Very
9. Interdisciplinary teams of 2 to 5 teachers sharing common students and housed in close proximity	①	②	③	④	⑤
10. Common teacher planning for teachers with the same set of students provided on a daily basis	①	②	③	④	⑤
11. Exploratory course offerings which provide required curricular opportunities for all students (e.g. music, art)	①	②	③	④	⑤
12. Advisor-advisee program regularly scheduled for 15 minutes or more during each classroom day	①	②	③	④	⑤
13. Intramural activities offered for all students during or immediately before or after the regular classroom day	①	②	③	④	⑤
14. Students assigned to teams heterogeneously, either at random or purposefully, rather than by ability, achievement, or interest.	①	②	③	④	⑤
15. Looping groups of students with the same teacher or teachers for more than one school year.	①	②	③	④	⑤

For questions 16-22, please indicate the degree to which your school CURRENTLY IMPLEMENTS the middle level characteristics below for the SIXTH grade students in your school.

Definitions:

① **No Implementation** – We do not have this characteristic in our school
② **Little Implementation** – We have this characteristic in our school to a small degree
③ **Partial Implementation** – We implement this characteristic but not every aspect as described in the statement
④ **Mostly Implemented** – We implement most of the characteristics as described in the statement
⑤ **Full Implementation** – We implement every aspect of the characteristic as described in the statement

(Question continued on next page)

	① None	② Little	③ Partial	④ Mostly	⑤ Full
16. Interdisciplinary teams of 2 to 5 teachers sharing common students and housed in close proximity	①	②	③	④	⑤
17. Common teacher planning for teachers with the same set of students provided on a daily basis	①	②	③	④	⑤
18. Exploratory course offerings which provide required curricular opportunities for all students (e.g. music, art)	①	②	③	④	⑤
19. Advisor-advisee program regularly scheduled for 15 minutes or more during each classroom day	①	②	③	④	⑤
20. Intramural activities offered for all students during or immediately before or after the regular classroom day	①	②	③	④	⑤
21. Students assigned to teams heterogeneously, either at random or purposefully, rather than by ability, achievement, or interest.	①	②	③	④	⑤
22. Looping groups of students with the same teacher or teachers for more than one school year.	①	②	③	④	⑤

School Schedule

These questions are related to the scheduling configuration of your sixth grade students specifically.

23. Our sixth grade teams include the following subjects: (select all that apply)

① English/Language Arts ③ Science ⑤ Reading ⑦ Other_____
② Mathematics ④ Social Studies ⑥ Physical Education

24. Our teachers have:

① One planning period that is not necessarily at the same time for all members of the team
② One planning period at the same time for all members of the team
③ One common planning for all team members plus an individual planning period

25. The students who are part of a team:

① Are taught only by the teachers of their team for "teaming" subjects
② May be taught by a non-team teacher for a "teaming" subject (exclusive of special education)

26. Looping is the practice of having a group of students stay with the same teacher or teachers for more than one school year. Please select the choice that best describes looping in your school:

① Looping is not practiced at all in our school.
② Looping is practiced only at some grade levels, and involves only some of the students at those grade levels.
③ Looping is practiced only at some grade levels, and involves all students at those grade levels
④ Looping is practiced at all grade levels, but only some students at each grade level are involved.
⑤ Looping is practiced at all grade levels, and all students are involved.

27. Which of the following best describes the location of classrooms used by teachers who teach on the same teams?

① The classrooms of all teachers on the same teams are adjacent.
② The classrooms of most teachers on the same teams are adjacent.
③ The classrooms of most teachers on the same teams are NOT adjacent.

28. Which of the following statements best describes your school's schedule? Select the one that is used to serve most of your sixth grade students. In other words, what is the primary form of schedule used to deliver instruction in your school?

① **Daily Disciplinary Schedule.** A schedule that has the equivalent of six, seven, or eight 45-60 minute class periods presented on a daily basis. This is commonly referred to as a disciplinary or departmentalized schedule. The distinguishing characteristic of this schedule is that students move from teacher to teacher every period to study a different content area.

② **Daily Interdisciplinary Schedule**. A schedule that has the equivalent of six, seven, or eight 45 minute class periods as the foundation but most of the schedule is implemented as blocks of time with teams of teachers who have the flexibility and opportunity to work together with a common set of students. This is commonly referred to as an interdisciplinary block schedule, allowing for teaming and groups of students to work with the team of teachers. The distinguishing characteristic of this schedule is that the core classes are blocked for a team of teachers and the non-core classes may or may not be grouped as a block of time.

③ **Alternating Day or Daily Disciplinary Block Schedule**. A schedule that has the equivalent of three or four 75-minute classes each day. As in the Daily Disciplinary Schedule, students move from one teacher and content area to another but they move every 75-100 minutes instead of every 45-60 minutes. A typical student takes three or four classes each day and on the following day takes three or four different classes. In some schedules one day a week, students attend all of their classes for a shorter period of time. This is commonly referred to as a "high school" block schedule, an 8-block schedule, a 4x4 block schedule, or similar descriptor. In this schedule students study a content area usually every other day for extended periods of time. In some 4x4 block schedules students study the same four subjects daily for a semester then study three or four different subjects the next semester.

④ **Alternating Day or Daily Interdisciplinary Block Scheduling**. A schedule that has the equivalent of three or four 75-100 minute classes each day, but is implemented as interdisciplinary blocks of time with two or more teachers working as a team to deliver instruction in the larger block of time. In some schedules, two teachers may work together in one 75-100 minute class or two teachers may merge two 75-100 minutes classes to create a team approach. As with the Daily Interdisciplinary Schedule, the distinction comes in the fact that two or more teachers are working together with a common set of students and have the flexibility to integrate the content area. As with the Disciplinary Block Schedule, students may take four classes on alternating days or three or four classes on alternating semesters.

⑤ **Self-Contained Classroom Schedule**. A schedule that has one teacher who teaches most or all of the subjects to a small set of students. This is the type of schedule commonly found in elementary schools where students have a single teacher for the core classes and may have special teachers such as music, health, or art. The distinguishing characteristic of this schedule is that one teacher is the primary teacher for most of the content of the students study.

Thank you for your time in completing this survey. If you would like to receive a copy of the final manuscript once the data has been compiled, please enter your email address where the file can be sent.

Email Address _____

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BIOGRAPHICAL SKETCH

Dana Kriznar graduated from Iowa State University in 1986 with a bachelor's degree in mathematics. After graduation, she accepted a teaching position at John Gorrie Junior High School in Jacksonville, Florida, where she taught math for four years, before transferring to Mandarin Middle School, in the same county. Dana earned her master's degree in Educational Leadership at the University of North Florida, and was then appointed as an assistant principal at Mandarin Middle School. She also served as vice principal of Twin Lakes Middle School, principal of Thomas Jefferson Elementary School, and principal of Kirby-Smith Middle School, all in Jacksonville, Florida. She earned her Ph.D. from the University of Florida in the fall of 2011, and currently serves as the Executive Director of Multiple Pathways and Support Services for Duval County Public Schools, a division dedicated to finding additional supports and alternative pathways to graduation for nontraditional students.

Dana is the daughter of Maureen A. Rodas and Dr. George F. Schuchmann, deceased. She is married to Brad Kriznar, a retired U. S. Navy Senior Chief who, after serving in the military for 21 years, now teaches middle school math in Duval County Public Schools. They are the proud parents of two teenage sons, Bradley Austin and Tyler Joseph. In her free time, Dana enjoys camping, reading, traveling, Gator football, and spending time with her dog, Buster.