A Comparison of Junior High Schools to Middle Schools with Respect to Achievement and Attendance

Darrell Clay
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A COMPARISON OF JUNIOR HIGH SCHOOLS TO MIDDLE SCHOOLS
WITH RESPECT TO ACHIEVEMENT AND ATTENDANCE

by
Darrell Clay

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A COMPARISON OF JUNIOR HIGH SCHOOLS TO MIDDLE SCHOOLS
WITH RESPECT TO ACHIEVEMENT AND ATTENDANCE

Darrell Clay, Ed.D.
Western Michigan University, 1992

During the past 30 years, the middle school movement has been a comprehensive effort to restructure middle level education. Literally thousands of school districts have chosen to change from junior high schools to middle schools for a variety of reasons. Research to support this massive reorganization of American schools has not been evident. The early research did not provide consistent evidence of improvement for middle school students. Most of this early research was based solely on the grade configuration of the schools being compared rather than the conceptual framework of the school.

The purpose of this study was to compare middle school students with junior high school students with respect to achievement and attendance records. The middle schools being studied had in fact implemented several key middle school components as they changed from junior high schools.

To complete this investigation, achievement test scores and attendance records of the middle school students were compared to the achievement test scores and attendance records of junior high students. The hypothesis of the
study was that there would be no difference between the groups. To test the hypothesis a t test of independent means was used with α of .05.

In this study the null hypothesis was rejected for the attendance portion of the study but not rejected for the area of academic achievement. The conclusion of the study is that middle school students are attending school more frequently than their junior high counterparts but that there is no difference in achievement between the middle school students and the junior high school students.

This investigation was limited to a single school district setting that had changed from a junior high format to a middle school environment. Recommendations for future research suggest that the study be further ensued after more middle school instructional practices are implemented.
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A comparison of junior high schools to middle schools with respect to achievement and attendance

Clay, Darrell, Ed.D.
Western Michigan University, 1992
ACKNOWLEDGEMENTS

During the past twenty-five years, I have become increasingly involved in the education of middle level students. As a junior high teacher, I was always wondering why the task of teaching junior high students was so difficult. I wondered whether it was the curriculum, the instructional approaches, or the students themselves. Over this period of time, many people have encouraged, influenced, and assisted me in my middle school/junior high queries that finally culminated with this investigation.

Many of my friends and colleagues have continually encouraged me to have a vision for middle level education including Judy Johnson and Dale Steeby who have also provided much needed administrative support. Sincere appreciation goes to my dissertation chairperson, Dr. Charles Warfield, for his encouragement and support. I would also like to thank Drs. David Cowden, Mary Strubbe-Davies, and Ronald Crowell for their expertise and assistance as members of my dissertation committee.

Most importantly, I owe a great deal of gratitude to my wife, Mary, and my daughter, Julia, for their patience, love and understanding while I pursued this endeavor. To them, I dedicate this dissertation.

Darrell Clay
# TABLE OF CONTENTS

ACKNOWLEDGEMENTS ................................................................. ii

LIST OF TABLES ................................................................................. v

CHAPTER

I. THE PROBLEM AND ITS SETTING ........................................ 1

  Introduction .............................................................................. 1

  Purpose of the Study ............................................................ 2

  The Setting ............................................................................ 4

  Need and Significance for the Study ................................. 6

II. REVIEW OF SELECTED LITERATURE ................................. 8

  Introduction ........................................................................... 8

  The Junior High School .......................................................... 8

  The Emergence of the Middle School ................................. 13

    Why a Middle School? ....................................................... 16

    Advantages of the Middle School .................................... 17

    Functions of a Middle School ......................................... 19

  Early Middle School/Junior High Research ...................... 21

  School Effectiveness Research ........................................... 26

  Recent Research Findings .................................................. 28

III. DESIGN AND METHODOLOGY ............................................ 36
Table of Contents--Continued

CHAPTER

The Schools ................................................................. 36
The Population ......................................................... 38
Data Collection ......................................................... 39
Data Analysis ............................................................ 39

IV. PRESENTATION OF DATA ............................................. 41

Introduction ............................................................ 41
Demographics .......................................................... 41
Results ........................................................................ 43
  Attendance ............................................................. 43
  Achievement ......................................................... 51

Summary ................................................................. 58

V. CONCLUSIONS AND RECOMMENDATIONS .................. 60

Introduction ............................................................ 60
Conclusions ............................................................ 60
Limitations ............................................................... 62
Value of the Study ..................................................... 63
Future Research Recommendations .......................... 63

BIBLIOGRAPHY .......................................................... 65
# LIST OF TABLES

1. Early Middle School/Junior High Research ............................................. 22
2. Middle School and Junior High Demographic Data by the Variables Race, Sex, and Socioeconomic Status ................................. 42
3. Middle School and Junior High School Attendance Data: Means (# of absences), Standard Deviations, and $p$ Value ................................................................. 44
4. Middle School and Junior High School Attendance Data by Socioeconomic Status, Means (# of absences), Standard Deviations, and $p$ Value ........................................ 45
5. Middle School and Junior High School Attendance Data by Sex, Means (# of absences), Standard Deviations, and $p$ Value ................................................................. 46
6. Middle School and Junior High School Attendance Data by Race, Means (# of absences), Standard Deviations, and $p$ Value ................................................................. 47
7. Seventh Grade Attendance Data: Means (# of absences), Standard Deviations, and $p$ Value ................................................................. 48
8. Eighth Grade Attendance Data: Means (# of absences), Standard Deviations, and $p$ Value ................................................................. 50
9. Middle School and Junior High School Achievement Data: Means (# of absences), Standard Deviations, and $p$ Value ................................................................. 51
10. Middle School and Junior High School Achievement Data by Socio-Economic Status, Means (# of absences), Standard Deviations, and $p$ Value .................................................. 52
List of Tables--Continued

11. Middle School and Junior High School Achievement Data by Sex, Means (# of absences), Standard Deviations, and p Value ............................................ 53

12. Middle School and Junior High School Achievement Data by Race, Means (# of absences), Standard Deviations, and p Value ............................................ 54

13. Seventh Grade Achievement Data: Means (# of absences), Standard Deviations, and p Value .......................................................... 56

14. Eighth Grade Achievement Data: Means (# of absences), Standard Deviations, and p Value .......................................................... 57
CHAPTER I

THE PROBLEM AND ITS SETTING

Introduction

The middle school movement may be one of the most comprehensive efforts at the reorganization of education in the history of public schooling. Thousands of schools have adopted a middle school plan and each year, according to George and Oldaker (1985), dozens of school districts open newly reorganized middle schools. Even though planning and implementing a districtwide change is one of the more difficult tasks that an educational institution faces, many school districts are making the transition from junior highs to middle schools.

For many school districts, the focus of the change is to reorganize the grade structure of the school district such as changing the middle grade level configuration from a 7-9 to a 6-8 plan. Other districts make the transition in a more philosophic manner from a traditionally secondary-oriented approach to a school with middle school elements as part of the conceptual design. No matter the reason, the change effort is directed at providing a unique program for the young adolescent learners in the middle level school.
However, it is this combination of reasons for which school districts are changing to middle schools that is causing a problem for middle level research. Often, the middle schools that are reorganized for grade level configuration purposes only are compared to existing junior high schools with the predictable lack of significant results as the outcome for dozens of studies.

Consequently, the middle school movement is left without the supportive research necessary to promote its continued existence. There has been a tremendous, enthusiastic, and often impassioned voice promoting middle schools in the last twenty years. That advocacy, however, has often been turned aside because of the unavailability of sufficient evidence to validate the practices proposed. An intuition that they were on sound ground sustained the already converted advocates, but it didn't always convince others. Educators, boards of education, and citizens are left without sufficient research to support whether the new middle schools work better than the organizations that they replaced. The question for everyone becomes, is the change to middle schools with all its shifting of resources and disruption of the status quo really worth the effort? Even more specifically, are middle school students achieving more and attending school more regularly than did their junior high counterparts?

Purpose of the Study

Even though there is substantial research that has been completed on middle schools, the research comparing middle schools with junior high schools
has not yet produced consistent evidence of improved student achievement, improved attendance, nor improvement in other areas. Studies have tended to say that junior highs and middle schools are more alike than they are different.

The existing research on middle level education has yet to establish that middle schools provide a better environment for achievement than junior high schools. A great deal of the middle school research was completed during the early years of the middle school movement (1970s). Most of the research was based on either grade level configurations and/or on whether a school said they were a middle school or not. Often these "middle schools" have then been used for comparisons with junior high schools. As could be predicted, there was a lack of significant results from this multitude of studies. These survey studies seldom touched the real programmatic factors, assumed differences based on school title or grade organization, and, not surprisingly, produced inconclusive and disappointing results.

In the last ten years, middle level educators have arrived at some consensus of the essential characteristics of successful middle schools. There is evidence (McEwin & Clay, 1983) to suggest that such program components are finding their way into more and more middle schools regardless of the name of the school or the grade levels included. The current research that is being done in middle school level education is based on establishing that the schools being called middle schools do in fact have installed several key middle
school components. Several researchers, including Lipsitz (1984), Dorman (1984), and Doda (1984), identified several significant features that need to be established before a middle level school should be considered a "middle school" for research purposes. The essential features should include interdisciplinary teaching, block scheduling, exploratory curriculum, advisement programs, and other components that address the unique needs of middle school students.

The purpose of this study is to establish further evidence that students attending middle schools (with key middle school components implemented) will have improved achievement scores and will attend school on a more regular basis than did their junior high counterparts. For the purpose of this study it is important to note that even though the early research does not establish that middle schools are more effective, the current research that first validates that a school is a middle school before it is compared to other schools is yielding more favorable results (Association for Supervision and Curriculum Development, 1975). It has been established for this study that the schools being studied have, in fact, moved from junior high schools to middle schools with the appropriate middle level components in place.

The Setting

The setting for this study is the Kalamazoo Public Schools. Kalamazoo, Michigan is a midwestern, mid-sized, urban city. Its cultural diversity is viewed
as a strength of the city. Five colleges and universities are located in Kalamazoo County. With more than 13,000 students enrolled in kindergarten through 12th grade, the Kalamazoo Public School District is the thirteenth largest of the more than 530 districts in Michigan.

The student population in the Kalamazoo Public Schools is a diverse one. The students represent many different cultural and ethnic backgrounds. About 60% of the students are Caucasian, 35% African-American and 5% Hispanic, Asian, Native American and others. Students across the district attend eighteen elementary schools, three middle schools, two high schools and six special services schools. The three middle schools were built in the mid 1950s to house junior high school programs and included grades seven, eight, and nine.

By the mid-1970s, community and school study committees were recognizing that the junior high program was not meeting the objectives for which it was designed. Proposals to modify the program to a 6-8 grade structured were repeatedly presented to the school administration and the school board in subsequent studies. In 1980, the ninth graders were moved to the high school leaving the junior highs with only grades seven and eight. By 1985, community and school officials were adamant that a change in program for middle level students was necessary.

During the next three years, further study of middle school programs yielded a plan to change the middle level schools in Kalamazoo Public Schools
from junior high programming to middle schools with essential middle school components. During the 1988-89 school year, the Kalamazoo Public Schools installed several essential middle school components in the middle level schools.

Need and Significance for the Study

The primary need for the study is to establish for the Kalamazoo Public Schools that the time and expense of the reorganization to middle schools is worth the effort. School personnel, as well as the school board and the community, want to know if the middle school is making a difference for the students. Specifically, even though there are reasons to be concerned about affective domain objectives, the bottom line is, are the middle school students achieving at a higher level than did their junior high counterparts in the Kalamazoo Public Schools.

Perhaps more importantly, this study will represent a new approach to the question as to whether middle schools can better meet the academic needs of the early adolescent. As stated earlier the research on this question is at best inconclusive. It is believed that the research is inconclusive because it is flawed by not ensuring that the middle schools are really different from the junior highs to which they are being compared. This study could help to establish that when essential middle school components are implemented at a middle school, it can be expected that students will achieve at a higher level
than before the reorganization. With this information we can begin to address the issues of Brookover (1982) and others who insist that we get on with the business of creating classroom environments and school learning climate that promote high achievement.
CHAPTER II

REVIEW OF SELECTED LITERATURE

Introduction

The middle school of the 1980s emerged from the junior high school. Ironically, the stated goals of the middle school today are exactly the goals espoused for the junior high school when it began in 1910 (Wiles & Bondi, 1986). These goals are to provide a transitional school between the elementary school and the high school and to help students bridge the gap in their development between childhood and adolescence.

The middle school concept can be better understood by examining the historical development of the junior high school and its growth. In this chapter, the history of the junior high school movement is first reviewed. Then the emergence of the middle school movement is explained before the final section on the current middle school research.

The Junior High School

The rapid growth of the high school in the United States in the late 1800s resulted in many different patterns of school organization. Some parts of the country operated under an 8-5 plan (eight years of elementary school...
and five years of high school). Others operated under an 8-4 pattern with eight years of elementary school and four of high school. Still others had six years of elementary school and six years in high school. The 8-4 pattern became popular toward the end of the nineteenth century with the elementary school seen as preparation for high school and the high school serving a college-preparatory function (Educational Research Service, 1983).

At the turn of the century, a number of national committees and commissions were organized to study secondary education. In general, these committees favored moving the secondary program down into the elementary grades. They suggested that secondary education be divided into two periods designated as the junior and senior periods. The influence of colleges on secondary committees and commissions was reflected in the reports of those groups (Educational Research Service, 1983). The report of the Committee of Ten in 1893, one of the most influential in American education, stressed that high school subjects such as algebra and foreign languages be initiated in the last years of the elementary school. The report suggested a 6-6 pattern of schooling (Wiles & Bondi, 1986).

While a separate junior high school was advocated in the early 1900s, it was simply thought of as a part of the high school. However, research studies on school dropouts and the psychological theory advanced by G. Stanley Hall in 1914 began to focus increased attention on adolescent youth.
Thoughts on "individual differences" and "meeting the needs of early adolescents" began to show up in educational literature.

In 1909, the first junior high school with grades 7-8-9 was introduced. Columbus, Ohio, was the first district to use the term junior high school. In January, 1910, Superintendent Frank Bunker of Berkeley, California, reported to the school board that two new junior high schools or introductory high schools would reduce the high dropout rate in the high schools and relieve overcrowded conditions. In 1919, the North Central Association of Colleges and Secondary Schools defined the junior high school as a school in which grades 7, 8, and 9 were placed in a building of their own with their own teaching staff and administrators (Alexander & McEwin, 1989).

By 1920, approximately 400 junior high schools were in existence and the number was growing. By the mid-fifties there were approximately 6,500 junior high schools in the United States (Wiles & Bondi, 1986). Although the majority of junior high schools were composed of grades 7-8-9, there were a number of other combinations including 8-9, 7-10, and 6-8. A number of 7-12 secondary schools still existed.

The curriculum of the junior high school tended to be in line with that of the high school. Teacher training institutions also prepared "secondary" teachers for positions in the junior high schools. Very few college courses dealt with early adolescent behavior. The organization of the junior high school also imitated that of the high school. The emphasis was on mastery of subject
matter with the program carried out through departmentalization. Activities such as marching band, athletics, proms, and cap-and-gown graduation exercises tended to exert considerable pressures on junior high students. The junior high school was in reality a "junior" high school.

The Carnegie unit credit assigned to grade 9 exerted additional influence on the course offerings of the junior high school. Later, the same argument for controlling the courses in the ninth grade was used to move the ninth grade to the high school and structure 6-8 middle schools.

The junior high school was not without its critics and there were attempts to reform the program and organization of the junior high through the addition of exploratory programs and core teachings. William Gruhn and Harl Douglass (1956) conducted a study of the junior high school and developed six basic functions of the junior high school:

1. Integration--To help students use the skills, attitudes, and understandings previously acquired and integrate them into effective and wholesome behavior.

2. Exploration--To allow students the opportunity to explore particular interests so that they can choose better choices and actions, both vocational and academic. Students will develop a wide range of cultural, civic, social, recreational and avocational interests.
3. Guidance--To help students make better decisions about vocational and educational activities and help students make satisfactory social, emotional, and social adjustments toward mature personalities.

4. Differentiation--To provide differential educational opportunities and facilities in accord with varying backgrounds, personalities, and other individual differences of students so that each pupil can achieve most economically and completely the ultimate aims of education.

5. Socialization--To furnish learning experiences intended to prepare students for effective and satisfying participation in a complex social order as well as future changes in the social order.

6. Articulation--To provide for a gradual transition from pre-adolescent education to an educational program suited to the needs of adolescent girls and boys. Articulation is necessary both from elementary to middle school and middle school to high school.

Gruhn and Douglass, as well as other leaders of the junior high movement such as Leonard Koos, Vernon Bennett, Calvin Davis, Thomas Briggs, and later John Lounsbury, William Van Til, Gordon Vars, and Maurice Ahrens, could not break the junior high school away from the high school mold (Wiles & Bondi, 1986). After forty years of existence, the deficiencies of the junior high school remained. As a reaction to these shortcomings, in the late 1950s and early 1960s the middle school emerged as an alternative to the junior high school.
The Emergence of the Middle School

Although the junior high school was under constant scrutiny, no specific major alternative structure was proposed until the middle school concepts emerged in the early 1960s. William Alexander (1964) helped revive the term middle school used in some American private schools and long used in European schools, and gave the term a new set of educational attributes.

Four factors led to the emergence of the American middle school. First, the 1950s and early 1960s were filled with criticism of American schools, classroom and teacher shortages, double and triple sessions, and soaring tax rates. The successful launching of Sputnik in 1957 led to further concerns, especially about the curriculum of elementary and secondary schools.

At this time a renewed interest in college preparation led to a call for a four-year high school where specialized courses like computer sciences and microbiology could remain under the direction of the college preparatory school, the high school. Likewise, the inclusion of grades 5 and 6 in an intermediate school promised to strengthen instruction by allowing subject specialists to work with younger students. Many of the first middle schools were organized with grades 5-8.

A second factor leading to the emergence of the middle school was the elimination of racial segregation. Vars (1987) stated that the real force behind
the middle school movement in the larger cities was the elimination of de facto segregation.

A third factor leading to the emergence of the middle school was the increased enrollments of school-aged children in the 1950s and 1960s. The shortage of buildings resulted in double and even triple school sessions in school districts. Because older students in high schools were able to cope with overcrowding better than younger students, the ninth grade was moved to the high school to relieve the overcrowded junior high school. The same rationale was used to relieve the elementary school by moving the fifth and/or sixth grade to the junior high school.

A fourth factor favorable to the emergence of the middle school was the "bandwagon effect." This resulted when one middle school received favorable exposure in books and periodicals, and some administrators determined that the middle school was "the thing to do."

All of the four factors above may not have been the most valid reasons why middle schools were organized, but regardless of the reasons, educators seized the opportunities to develop programs designed for the pre and early adolescent learner.

It is interesting that in the early 1980s the same four factors influencing middle school development exist except for two changes, i.e., the criticism of schools is not directed toward language, science, and mathematics excellence, but toward basic skills in reading and mathematics, and the increased
enrollment of the 1950s and 1960s has become a declining enrollment in the 1980s.

Today, junior high schools are being reorganized into middle schools to eliminate segregation, to alleviate population and building problems brought on by declining enrollment, to improve basic skills programs in the middle grades, and because "other districts have middle schools and we should too."

Although there are de facto reasons for reorganizing junior high schools into middle schools, Alexander (1968), George (1983), Lounsbury & Vars (1978) and others agree that providing an appropriate program and learning environment for early adolescents, is easier to justify. These expectations include:

1. Providing a program designed for the 10-14 year old child going through the early adolescent period of growth and development. There is recognition that students 10-14 constitute a distinct grouping—physically, socially, and intellectually.

2. Building upon the changed elementary school. Historically, clamor to upgrade schools prepared the way for elementary school personnel to accept the middle school concept. As part of the reorganization of curriculum, elementary teachers tended to cultivate a specific content area in the curriculum. This led to a departure from the self-contained classroom toward more sharing of students among teachers.
3. Dissatisfaction with the existing junior high school. The junior high school, in most cases, did not become a transitional school between the elementary and senior high school. Unfortunately, it became a miniature high school with all the sophisticated activities of the high school. Instruction was often formal and discipline centered with insufficient attention given to the student as a person.

4. Facilitating educational change. A more rapid and comprehensive change is frequently effected by creating a new institution rather than attempting to remodel an older one. Teachers and administrators in a new school, free from the constraints and traditions of an existing school, are more receptive to innovations and new ideas.

Why a Middle School?

Many reasons have been advanced for the existence of the middle school. After examining statements of rationale for numerous middle schools, two basic reasons emerged for their development: [George & Oldaker (1985), Eichhorn (1987) and others]:

1. A special program is needed for the 10-14 year-old child going through unique "transescent" period in his growth and development. The widest range of differences in terms of physical, social, and intellectual growth is found in middle school youngsters. Such a wide range of differences calls for an individualized program that is lacking in most junior high schools. The
middle school provides for individual differences with the program tailored to fit each child.

2. The middle school, through a new program and organization, provides for much needed innovations in curriculum and instruction. Through the creation of a new school, the middle school rather than remodeling the outmoded junior high school, educators have provided an atmosphere for implementing those practices only talked about but seldom effected.

Advantages of the Middle School

Early in the middle school movement, middle school authorities Romano, Georgiady & Heald (1973), Eichhorn (1987) and Alexander (1968) provided a comprehensive list of advantages for the middle school, many of which remain as guidelines even today:

1. It gives this unit a status of its own, rather than a "junior" classification.

2. It facilitates the introduction in grades 5 and 6 of some specialization and team teaching in staff patterns.

3. It also facilitates the reorganization of teacher education which is sorely needed to provide teachers competent for the middle school; since existing patterns of neither the elementary nor the secondary teacher training program would suffice, a new pattern must be developed.
4. Developmentally, children in grades 6-8 are probably more alike than children in grades 7-9.

5. Since they are undergoing the common experience of adolescence, 6th-8th graders should have special attention, special teachers, and special programs, which the middle school permits.

6. It provides an opportunity for gradual change from the self-contained classroom to complete departmentalization.

7. Additional facilities and specialists can be made available to all children one year earlier.

8. It permits the organization of a program with emphasis upon a continuation and enrichment of basic education in the fundamentals.

9. It facilitates extending guidance services into the elementary grades.

10. It helps to slow down the "growing up" process from K-8 because the oldest group is removed from each level.

11. It puts children from the entire district together one year earlier, aiding sociologically their development.

12. Physical unification of grades 9-12 permits better coordination of courses for the senior high school.

13. It eliminates the possibility of some students and parents not being aware of the importance of the ninth grade as part of the senior high school record, particularly in terms of college admission.
14. It eliminates the need for special programs and facilities for one grade and eliminates the problems created by the fact that the ninth grade is functionally a part of the senior high school.

15. It reduces duplication of expensive equipment and facilities for the one grade. The funds can be spent on facilities beneficial to all grades.

16. It provides both present and future flexibility in building planning, particularly when it comes to changing school population.

Functions of a Middle School

Middle schools, both in recognition and numbers, have become a separate intermediate institution in America. Cumulative experience, that "the middle school works," has resulted in widespread acceptance of the middle school by children, teachers, administrators, and parents. The middle school is repeatedly defined as a transitional school concerned with the most appropriate program to cope with the personal and educational needs of emerging adolescent learners. The Association for School Curriculum Development (1975) has identified the middle school as an institution which has the following:

1. A unique program adapted to the needs of the early adolescent student.

2. The widest possible range of intellectual, social, and physical experiences.
3. Opportunities for exploration and development of fundamental skills needed by all while making allowances for individual learning patterns. It should maintain an atmosphere of basic respect for individual differences.

4. A climate that enables students to develop abilities, find facts, weigh evidence, draw conclusions, determine values, and that keeps their minds open to new facts.

5. Staff members who recognize and understand the student's needs, interests, backgrounds, motivations, goals, as well as stresses, strains, frustrations, and fears.

6. A smooth education transition between the elementary school and the high school while allowing for the physical and emotional changes taking place due to transescence.

7. An environment where the child, not the program, is most important and where the opportunity to succeed is ensured for all students.

8. Guidance in the development of mental processes and attitudes needed for constructive citizenship and the development of lifelong competencies and appreciations needed for effective use of leisure.

9. Competent instructional personnel who will strive to understand the students whom they serve and develop professional competencies which are both unique and applicable to the transescent student.

10. Facilities and time which allow students and teachers an opportunity to achieve the goals of the program to their fullest capabilities.
The middle school, then, represents a renewed effort to design and implement a program of education which can accommodate the needs of the early adolescent population. It is a broadly focused program drawing its philosophy and rationale from the evolving body of knowledge concerned with human growth and development. The middle school represents a systematic effort to organize the schooling experience in a way which will facilitate the maximum growth and development of all early adolescent learners. It is this type of focus and philosophical understanding that was lacking from the early middle school/junior high research.

Early Middle School/Junior High Research

Much of the early research on middle schools compared student outcomes without regard to what changes had been made in the school except for grade configuration. Variables such as attendance, achievement, self-esteem, race relationships, attitudes, and basic skills were common to many of the studies. Literally hundreds of research projects yielded inconclusive and conflicting research and results. In spite of this problem, the research continued for many years based solely on grade configurations and whether or not a school was named a middle school. A gleaning of the research finds many studies that were replicated but yielded varying findings. The findings in Table 1 represent only a sampling of those extensive early middle school/junior high research efforts.
## Table 1

### Early Middle School/Junior High Research

<table>
<thead>
<tr>
<th>RESEARCHER</th>
<th>PURPOSE</th>
<th>SAMPLE</th>
<th>FINDINGS</th>
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</thead>
<tbody>
<tr>
<td>Howell (1969)</td>
<td>To determine the effects on the students of establishing a middle school.</td>
<td>Achievement tests given to students at the beginning and end of the year.</td>
<td>Concluded that students continued to grow normally, or above.</td>
</tr>
<tr>
<td>Moran (1969)</td>
<td>To determine the effects of middle school program on academic achievement and attitudes of students.</td>
<td>Administered academic achievement tests and attitudinal measurement scales to 298 6th grade students, half of whom were exposed to a middle school program, the other half to a traditional program.</td>
<td>Concluded that middle school approach on an overall basis, met the needs of the 6th grade students better than the traditional approach. Middle school students showed greater gains in language arts, mathematics, social studies, and science.</td>
</tr>
<tr>
<td>Armstrong (1975)</td>
<td>To compare schools that came close to middle school ideals to schools that were not as successful</td>
<td>Surveyed 2,197 students in five successful middle schools and 2,357 students in less successful</td>
<td>Found that students in successful middle schools held more favorable perceptions of</td>
</tr>
<tr>
<td>RESEARCHER</td>
<td>PURPOSE</td>
<td>SAMPLE</td>
<td>FINDINGS</td>
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<td>-------------</td>
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<tr>
<td>Mooney (1970)</td>
<td>To determine differences in student achievement and attendance between middle schools, junior high schools, and elementary schools.</td>
<td>Administered achievement tests to 5th, 6th, 7th, 8th, and 9th graders enrolled in elementary, middle, and junior high schools and compared the attendance records of the pupils.</td>
<td>Found no significant differences in achievement between any of the schools, nor any significant differences between graduates of middle school who attended high school and 9th graders enrolled in a junior high; the school environment than did students in less successful schools. Concluded that there is a strong positive relationship between the extent to which the ideal middle school practices are implemented and a favorable educational environment, as perceived by the students.</td>
</tr>
<tr>
<td>RESEARCHER</td>
<td>PURPOSE</td>
<td>SAMPLE</td>
<td>FINDINGS</td>
</tr>
<tr>
<td>------------</td>
<td>---------</td>
<td>--------</td>
<td>----------</td>
</tr>
<tr>
<td>Evans (1970)</td>
<td>To compare middle schools to junior high schools.</td>
<td>Compared two middle schools to two junior high schools by administering achievement tests to 8th grade students.</td>
<td>Overall achievement test results favored middle school students, but not significantly; middle school students did significantly better in reading and study skills, junior high school pupils did significantly better in math at one junior high and language skills at the other junior high.</td>
</tr>
<tr>
<td>Routt (1975)</td>
<td>To compare academic achievement of students in middle school to students in elementary school.</td>
<td>Administered academic achievement tests to 6th and 7th graders enrolled in two middle schools and three</td>
<td>Found that 6th graders in the elementary school experienced fewer adjustment problems,</td>
</tr>
</tbody>
</table>

attendance overwhelmingly favored the middle school.
## Table 1--Continued

<table>
<thead>
<tr>
<th>RESEARCHER</th>
<th>PURPOSE</th>
<th>SAMPLE</th>
<th>FINDINGS</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>elementary schools.</td>
<td>fewer problems with other students, and were involved in less disciplinary action than middle school students. The results on academic achievement were inconclusive.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Administered achievement tests and attitudinal measurement scales to 50 students from each grade in a middle school and a junior high.</td>
<td>Found that 5th and 6th graders were not adversely affected by middle school; because there were no significant differences for any of the comparisons at any grade level, middle schools were at least equal to junior high school.</td>
</tr>
</tbody>
</table>

To compare middle schools to junior high schools in terms of student achievement, attitude, and self-concept.

From the samplings above, it can be ascertained that the research is inconclusive in regards to either achievement or attendance for middle schools.
when compared to junior high schools. The above studies and most other early research disregarded whether anything was really being changed except for the grade configuration and/or the name of the school. With the implementation of essential middle school components, we should be able to find research that supports the middle school movement.

School Effectiveness Research

The middle school movement has emerged during an interesting period in the history of educational research. In the last twenty years, changes have been made in the conducting of educational research. Instead of using only experimental research, researchers have further developed a new method of seeking answers to important questions by reviewing the elements of successful schools. This new approach in social science research emerged at just about the same time as the middle school was born, about a quarter of a century ago.

James Coleman (1966) published a national study that focused on equal educational opportunity. After amassing mountains of data about student achievement, this influential study concluded that the only really significant factor in academic achievement was the socioeconomic status of the children who attended a school.

The idea that teachers were inconsequential and that schools made no difference in the lives of children was maddening to teachers. Twenty years
later, research in what has come to be called "teacher and school effectiveness" is being used in many school districts and colleges of education in the country. This effectiveness research has demonstrated that teachers do make a difference and that poor children can learn well. Major efforts at school improvement, based on this research, are underway in hundreds of districts and student achievement scores are responding positively (George & Oldaker, 1985).

In education, this research followed several basic steps (George & Oldaker, 1985). First, researchers began with the assumption that teachers can make a difference and that schools do matter. Second, they identified classrooms and schools where students made gains that went beyond what could have been predicted or expected. Third, researchers went to the classrooms and the schools where the successes were documented and attempted to discover what made the difference. Fourth, having discovered and described the characteristics of effectiveness in separate classrooms and schools, researchers examined the characteristics of successful schools to learn whether such schools have important similarities that could be linked to improved academic achievement. Finally, the researchers have attempted to develop models that can be used in assisting other teachers and schools to become more successful.

During the 1980s, the pursuit of effective school research as measures of school effectiveness has been extended into the area of middle school
education. Based on the assumption that schools do make a difference in the lives of their students, and that the degree and type of differences can be traced to the characteristics of the schools in question, educational researchers have uncovered some important findings. The most recent research, as described in the next section, suggests that the efforts at reorganizing the middle schools are promoting higher academic achievement, improved attendance and improved personal development for early adolescent students. It is those findings that encourage the current researchers to further test the question as to whether or not middle school students are attending school more regularly and achieving higher than junior high school students.

Recent Research Findings

Accepting the argument that grade level and name of the school are unlikely to be the cause for any significant differences among schools, recent research studies have avoided comparisons of middle and junior high schools. Nor has any time been wasted on further futile attempts to determine which combination of grade levels holds the secret of success with early adolescents.

Recent research has, instead, focused on the identification of schools that have an outstanding record of success which can be demonstrated to be free of dependence on the socioeconomic status or ethnic backgrounds of the students attending the school. Typically, an outstanding record of success is established by determining that the schools measure up to a number of
important criteria for success (Lipsitz, 1984). These factors include academic achievement scores on standardized tests, attendance rates, behavior in school, and parental satisfaction. Once these criteria had been satisfied, the schools became the subjects of intensive indepth investigation (George & Oldaker, 1985).

One of the first such studies was conducted by Rutter, Maughan, Mortimore, & Ouston (1979) and their associates in twelve junior high schools in inner-city London. It is important for persons interested in middle level education because the findings provide a confirmation of some of the central components of the middle school concept, in spite of the fact that they were discovered in junior high school settings.

Rutter et al. (1979) discovered that within this sample of twelve junior high schools, several of the schools were very successful while others were not. Successful outcomes were not a matter of grade levels. The reasons for the success of some of the schools and the failure of others in this study appear to be related to academic emphasis and the psychosocial environment.

Most important, insofar as the middle school is concerned, is that all of the factors that led to the "ethos of caring" characteristic of the successful schools are components of today's American middle school concept. George (1983) realized the significance of the study by acknowledging that Rutter understood, and made clear, the insignificance of the concerns for the name of the school, the grade levels included, or other factors which had been
mistakenly perceived as important to the middle school by those new or uninformed about the process of middle level education.

Not too long after the Rutter et al. (1979) study became known, Phi Delta Kappa published its own study of the characteristics of schools that had what that association called good discipline. Over 500 schools responded to a detailed questionnaire that helped to establish the common characteristics of schools known for good student behavior. Among the recommendations that emerged from the study were several that middle school advocates would claim as central to that approach to the education of early adolescents (George & Oldaker, 1985): (a) schools should find ways to improve how people in the school work together to solve problems; (b) schools should develop the means to reduce authority and status differences among all persons in the school; (c) schools should increase and widen the students' sense of belonging in the school; (d) schools should find a way to deal with the personal problems that affect life within the school (programs called "advisor-advisee" were advocated); (e) and schools should improve the physical and organizational arrangements so that these factors reinforce other efforts.

It is easy to see in the above studies a clear reference to organizational approaches of the middle school such as the interdisciplinary team and the advisory program.
Further support for this perspective on the centrality of school organization to the middle school concept emerged that same year in an important study at the University of Florida (Damico, 1982). A group of social psychologists and sociologists, concerned about how middle school organization might affect interracial contact among early adolescents, examined student interaction in six different middle level schools in the same school district. The schools had the same grade levels, the same designation (middle) and were attended by students from similar ethnic and socioeconomic backgrounds. Everything about the schools was as similar as it could be, except for the ways in which the schools were organized.

Two of the six schools were organized as the middle school concept suggests, with interdisciplinary team organization and advisory groups. The other four schools had academic departments without teams, no advisory program and were organized so that teachers and students changed every academic year, with students being reorganized into new class groups each year. Researchers concluded, after extensive examination of the interracial interaction in the schools, that the schools with the interdisciplinary team organization had a much more positive interracial climate. It seems clear that the team organization, with the advisory group program and multiage grouping, contributes significantly to the improvement of race relationships among young adolescents (George & Oldaker, 1985).
During this same period, researchers at the Center for Early Adolescence, in Carrboro, North Carolina, undertook a study of schools which had been identified, according to their criteria, as being particularly responsive to the developmental needs of young adolescents (Dorman, 1984; Lipsitz, 1984). Selecting from among many that were nominated, the researchers identified four schools to be observed in great depth. At the end of the intensive observations, the researchers concluded that, while there was no single model that could be prescribed exclusively, there were common themes present in each of the four highly successful schools. Lipsitz (1984) describes the most striking of these common features as the schools' willingness and ability to adapt all school practices to the individual differences in intellectual, biological and social maturation of their students. The schools set out to establish a positive learning climate, not just because it would lead to increased academic achievement, but because it was something which possessed intrinsic value in the education of young adolescents.

Lipsitz (1984) also observed that there is a highly unusual lack of adult isolation in the schools because common planning and lunch periods, team meetings, and team teaching encourage constant communication and allow for high levels of companionship. In an earlier summary of this research, Lipsitz concluded that while it is not possible to say how widespread the excellence in middle-grade schooling was, these four schools provided evidence that even
with diverse means and in diverse circumstances, middle schools can be breeding grounds for academic excellence and social development.

A recent examination of the characteristics of effective inner-city intermediate schools (Levine & Eubanks, 1984) contained descriptions of schools in Watts, Brooklyn, the Bronx, and Detroit. These schools, with demonstrably higher academic achievement than others in the same situations, were found to have undergone significant organizational change on the way to improvement. Levine and his colleagues concluded that significant structural change is a requirement for effective instruction at inner-city middle schools and that efforts to improve teaching methods are not likely to have much impact unless accompanied by appropriate structural changes in instructional and organizational arrangements.

It is difficult to examine this current research in the education of young adolescents and not realize how unimportant concerns like the name of the school or the grade levels are to the outcomes of students. Furthermore, it seems clear that another reason much of the research has been fruitless is the false assumption that the middle school reorganization process has been, primarily, one of change in the curriculum offered to the students or of new instructional strategies to present the materials to be learned.

There is little evidence for the view that changes in curriculum and instruction have been central to the middle school movement. Much of what students learn in the eighth grade is the same regardless of the school in
which they learn it. The curriculum and instruction students experience is probably what their parents also experienced. While it may be accurate to argue that changes in the curriculum and instructional program of schools for early adolescents should have come first, this has apparently not been the case. Perhaps the attempts to change the curriculum that did occur where short-lived because, as Levine et al. (1984) write, they were too often implemented without important corresponding changes in the organization of the school.

Throughout the research, it is interesting to note that the attendance of students in schools is often used as a measured variable. The improvement in school climate, and the caring, nurturing nature of the middle school teacher should contribute to students choosing to attend school on a more regular basis.

In summary, recent research in middle level education suggests that organizational restructuring is, however, happening in an increasingly larger number of schools, and that this reorganization is very similar, even though it occurs in very diverse school settings and in very diverse communities. Furthermore, the research has begun to suggest that these efforts at reorganization do, indeed, promote higher academic achievement and improve personal development for the youth who are fortunate enough to experience such a program. The question still remains as to whether academic
achievement and attendance are improved for middle schools that have successfully reorganized from junior high schools.
CHAPTER III

DESIGN AND METHODOLOGY

The Schools

During the 1988-89 school year, the Kalamazoo Public Schools installed several essential middle school components in the middle level schools. The three middle schools (grades seven and eight) in Kalamazoo are nearly identical in structure. Each school has approximately 600 students with a teaching staff of about 30 teachers. Teachers in the content areas of math, science, social studies, and language arts are grouped in a team. There are two teams at each grade level. Each teacher team has a common planning time and the teachers are expected to meet certain objectives in team meetings. In addition to the interdisciplinary teaming, two other key components, an advisement program and an exploratory curriculum, exist in the middle school plan.

The Board of Education provided guidance and encouragement in the establishment of the middle school project for the Kalamazoo Public Schools. After studying the middle school literature, the Board of Education determined which of the middle school components were needed in Kalamazoo. Their efforts culminated in the approval of a ten item mission statement (Kalamazoo...
Public Schools, 1989) for middle school program implementation. A brief statement of each of the objectives is outlined below:

For the Kalamazoo Public Schools, the Middle School Plan should:

1. Feature a program that responds to the physical, intellectual, and social-emotional needs of early adolescents.

2. Possess a definite curriculum plan that includes organized knowledge, skills, and personal development activities.

3. Have a clearly established program of studies based upon the concept of exploration and provides opportunities for student growth.

4. Build on the strengths of elementary education while preparing students for success in high school.

5. Encourage teachers to focus on the learning needs of pupils by using appropriate teaching strategies.

6. Create teaching teams and use block of time scheduling to best deliver the instructional program.

7. Emphasizes the guidance and counseling function of staff members by providing for an advisement program, stressing the importance of self-concept, and providing a positive climate.

8. Promote flexibility in implementing the daily, weekly, and monthly schedule to meet the varying needs of students.

9. Actively involve parents in various aspects of the school experience.
10. Evaluate the program on a regular basis and make changes that enhance the learning.

The objectives listed above established the framework for the middle schools in Kalamazoo Public Schools to move beyond the name change only syndrome. In fact, a study at the end of the first year confirmed appropriate installation of the middle school components. It is with this information in hand, that a comparison of the middle school students to their junior high counterparts is now feasible.

The Population

The nearly 1600 students that attended the Kalamazoo Public Schools' junior high schools in 1987-89 are the first identified group. They are students that attended a junior high school without any middle school components. The second group of 1600 additional students attended the middle schools after the reorganization of the schools to include interdisciplinary teams, an advisement program, and an extensive exploratory curriculum.

The two groups appear to be very similar. As sixth graders, the junior high school group had a composite Iowa Test of Basic Skills (Hieronymus & Hoover, 1986) percentile rank of 51 and had missed an average of 8.2 days of school. The middle school group, as sixth graders, had a composite Iowa Test of Basic Skills (1986) percentile rank of 50 and had missed an average of 8.4 days of school. The large size of the groups and the information above,
alleviate the concern that the groups being compared were different. They were, in fact, very similar.

Data Collection

Student data were collected for both the junior high school students and the middle school students. The data collected included attendance and achievement data as well as demographic data such as grade, sex, race, and socioeconomic (free/reduced or paid lunch) status.

Data were extracted from computer records where possible. Cumulative folders were examined for any missing data. Wherever records were substantially missing, that student's records were deleted from the study. The same process was used for both groups.

Data Analysis

The operational hypothesis for this study was that the mean score for middle school students on both achievement and attendance would be higher than those for the junior high school students. That is, middle school students would have fewer absences and would achieve at a higher level than their junior high counterparts. The null hypothesis for the research was that there is no difference in the means for academic achievement scores and attendance data between middle school students and junior high students.
There were lots of possibilities for comparing different groupings of middle school students with their counterpart junior high group. These included groupings by race, sex, and grade, or any combination thereof. Some additional analysis of the data was expected to provide useful information in regards to specific subgroups. For example, it would be worthwhile to know whether the middle school students on free/reduced lunch attended school more regularly and achieved at higher levels than junior high students who were on free/reduced lunch. Additionally, it would be of interest to know whether Black middle school students attended school more regularly and achieved at higher levels then their Black junior high counterparts.

The statistical analysis used was the t test of independent means (middle school attendance vs. junior high attendance) and a second t test of independent means (middle school achievement scores vs. junior high achievement scores). First the entire population of junior high students was compared to the entire population of middle school students. Then students were sorted by grade and by the variables of lunch, sex, and race for further analysis. The test was two-tailed. The results were considered significant if the resulting p value was less than or equal to .05. The null hypothesis is rejected in each instance where the p value is less than or equal to .05. Only the null hypothesis that there is no difference in achievement or attendance when comparing middle school students to junior high students will be tested for the purpose of this investigation. All other data were for analysis only.
CHAPTER IV

PRESENTATION OF DATA

Introduction

This chapter includes discussion of the demographics of the student population for both the middle school and the junior high school students that were included in the study. It also includes the results and analysis of the achievement tests and the attendance data in relationship to the kind of school the students attended. The null hypothesis of the study was that there was no difference in the attendance for middle school students when compared to junior high school students and no difference between the academic achievement of students who attended a middle school and students who attended a junior high school.

Demographics

Table 2 is an exhibit of the demographic data by junior high school setting for the year 1988-89 and by middle school setting for the year 1990-1991. Student demographic data are provided in the areas of race, sex, and socio-economic status (indicated by free/reduced or paid lunch). These data
are used to establish that the two groups are very similar in nature except for the type of school they attended. The demographic data provide three additional variables on which the results of the investigation may be analyzed. The literature does not provide any evidence as to the formulation of any hypotheses based on these subgroups. The results will be used for discussion purposes.

Table 2

Middle School and Junior High Demographic Data by the Variables Race, Sex, and Socioeconomic Status

<table>
<thead>
<tr>
<th>VARIABLE</th>
<th>MIDDLE SCHOOL 1990-91</th>
<th>JUNIOR HIGH 1988-89</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>7th Grade</td>
<td>8th Grade</td>
</tr>
<tr>
<td>Race</td>
<td></td>
<td></td>
</tr>
<tr>
<td>American Indian</td>
<td>4 00.5</td>
<td>5 00.6</td>
</tr>
<tr>
<td>Black</td>
<td>300 37.1</td>
<td>268 34.6</td>
</tr>
<tr>
<td>Oriental</td>
<td>8 1.0</td>
<td>8 1.0</td>
</tr>
<tr>
<td>Hispanic</td>
<td>30 3.7</td>
<td>32 4.1</td>
</tr>
<tr>
<td>White</td>
<td>466 55.7</td>
<td>461 59.6</td>
</tr>
<tr>
<td>Sex</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>396 49.0</td>
<td>415 53.6</td>
</tr>
<tr>
<td>Female</td>
<td>412 51.0</td>
<td>359 46.4</td>
</tr>
<tr>
<td>Free/Reduced Lunch</td>
<td>398 43.9</td>
<td>357 46.1</td>
</tr>
<tr>
<td>Paid Lunch</td>
<td>410 50.7</td>
<td>417 53.9</td>
</tr>
<tr>
<td>TOTAL</td>
<td>808 774</td>
<td>759 927</td>
</tr>
</tbody>
</table>
From Table 2, it can be ascertained that the demographic data remained in approximately the same proportions throughout the variables with the exception of the eighth grade junior high group having a somewhat smaller proportion of free/reduced lunch. The total number of students in the junior high population is 1686 while the middle school group is 1582 students.

For both groups, the proportion of white students remained in the area of just less than 60% while the other ethnic groups were represented with the other 40% (about 37% Black). As would be expected, the student population was nearly equally divided male and female for each of the groups.

Results

Attendance

The first null hypothesis of this study was that there is no difference in the attendance of students who attended a middle school when compared to students who attended a junior high school. The data for this hypothesis testing were gathered from cumulative records as well as computer records to establish the absenteeism for each student in both populations. The absenteeism is the number of days that a student was absent for the entire year. Table 3 is an exhibit of these data when compiled using the SPSS data analysis program. The results are considered statistically significant when the
resulting p value was less than or equal to .05.

Table 3

Middle School and Junior High School Attendance
Data: Means (# of absences), Standard
Deviations, and p Value

<table>
<thead>
<tr>
<th>Variable</th>
<th>N</th>
<th>Mean</th>
<th>SD</th>
<th>N</th>
<th>Mean</th>
<th>SD</th>
<th>t</th>
<th>df</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Middle School 1990-91</td>
<td>1547</td>
<td>14.1</td>
<td>13.3</td>
<td>1079</td>
<td>17.0</td>
<td>16.1</td>
<td>-5.08</td>
<td>2624</td>
<td>.000</td>
</tr>
<tr>
<td>Junior High 1988-89</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

For the middle school students during 1990-91, the mean absenteeism for all students was 14.3 while the mean absenteeism for all junior high students during 1988-89 was 16.3. The t test for independent means indicates that this is a significant difference with p = .012.

As a further analysis of these attendance data, the groups were tested within several sub-groupings. Table 4 shows the statistical results when examining the groups by socioeconomic status. Here we again find statistically significant differences with p = .000 for both subgroups. For middle school students on free/reduced lunch, the mean number of days absent was 17.3 while their junior high counterparts were absent 23.2 days. (This is a difference of 5.9 days). For the students who have paid lunch, the middle school students missed 11.4 days and their junior high counterparts were absent 14.7
days which is a difference of 3.3 days.

Table 4

Middle School and Junior High School Attendance Data by Socioeconomic Status, Means (# of absences), Standard Deviations, and p Value

<table>
<thead>
<tr>
<th>Variable</th>
<th>Middle School 1990-91</th>
<th>Junior High 1988-89</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N</td>
<td>Mean</td>
</tr>
<tr>
<td>Socio-Economic Status</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Free/Reduced Lunch</td>
<td>714</td>
<td>17.3</td>
</tr>
<tr>
<td>Paid Lunch</td>
<td>833</td>
<td>11.4</td>
</tr>
</tbody>
</table>

Similarly, from Table 5, middle school males had a mean absence rate of 14.3 days while junior high males were absent 15.8 days. Even though this is a difference of 1.5 days, it is not a statistically significant difference with p = .063. However, the middle school females with 13.8 days absent were absent 4.4 days less than the 18.2 days absent for junior high females. This difference is statistically different with p = .000. It is interesting to note that the improvement for females is considerably more than for males. It is this type...
of information that will be important for further analysis.

Table 5

<table>
<thead>
<tr>
<th>Variable</th>
<th>N</th>
<th>Mean</th>
<th>SD</th>
<th>N</th>
<th>Mean</th>
<th>SD</th>
<th>t</th>
<th>df</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sex</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>730</td>
<td>14.3</td>
<td>13.2</td>
<td>624</td>
<td>15.8</td>
<td>14.4</td>
<td>-1.86</td>
<td>1352</td>
<td>.063</td>
</tr>
<tr>
<td>Female</td>
<td>717</td>
<td>13.8</td>
<td>13.3</td>
<td>555</td>
<td>18.2</td>
<td>17.6</td>
<td>-5.07</td>
<td>1270</td>
<td>.000</td>
</tr>
</tbody>
</table>

In Table 6, the data by race are similar. Minority students (Black and other) were absent 15.4 days as middle school students while their counterparts as junior high school students were absent 19.6 days. This difference was statistically significant with $p = .000$. For white students the difference was also statistically significant with $p = .013$. Middle school white students were absent an average of 13.3 days while white junior high school students were absent 15.0 days.

With these data, we can reject the null hypothesis that there is no difference in the mean number of days absent for middle school students than junior high school students and accept the alternate hypothesis that middle school students attend school more regularly than their junior high counterparts.
Table 6
Middle School and Junior High School Attendance Data by Race, Means (# of absences), Standard Deviations, and p Value

<table>
<thead>
<tr>
<th>Variable</th>
<th>Middle School 1990-91</th>
<th>Junior High 1988-89</th>
<th>t</th>
<th>df</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Race</td>
<td>N Mean SD</td>
<td>N Mean SD</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Black &amp; Other</td>
<td>625 15.4 14.3</td>
<td>475 19.6 17.9</td>
<td>-4.40</td>
<td>1098</td>
<td>.000</td>
</tr>
<tr>
<td>White</td>
<td>922 13.3 12.4</td>
<td>604 15.0 14.3</td>
<td>-2.49</td>
<td>1524</td>
<td>.013</td>
</tr>
</tbody>
</table>

Further analysis of the attendance data allows for a comparison by grade for students at each type of school. We can compare the absenteeism for middle school seventh graders with the absenteeism for junior high seventh graders as well as eighth grade middle schoolers to eighth grade junior high students.

Table 7 is the complete analysis of attendance data for seventh grade students. Even though there was a significant difference when examining the composite group, when the data are disaggregated by the variables of socio-economic status, sex, and race we find some interesting sub-group statistics. The subgroup statistics are not part of the statistical analysis but are worthy of discussion.
Table 7

Seventh Grade Attendance Data: Means (# of absences), Standard Deviations, and p Value

<table>
<thead>
<tr>
<th>Variable</th>
<th>Middle School 1990-91</th>
<th>Junior High 1988-89</th>
<th>Statistical Analysis</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N</td>
<td>Mean</td>
<td>SD</td>
</tr>
<tr>
<td>All</td>
<td>807</td>
<td>14.3</td>
<td>13.7</td>
</tr>
<tr>
<td>Free/Reduced Lunch</td>
<td>398</td>
<td>19.0</td>
<td>15.7</td>
</tr>
<tr>
<td>Paid Lunch</td>
<td>409</td>
<td>9.7</td>
<td>9.4</td>
</tr>
<tr>
<td>Sex</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>396</td>
<td>14.1</td>
<td>12.9</td>
</tr>
<tr>
<td>Female</td>
<td>411</td>
<td>14.5</td>
<td>14.4</td>
</tr>
<tr>
<td>Race</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Black &amp; Other</td>
<td>342</td>
<td>16.3</td>
<td>13.8</td>
</tr>
<tr>
<td>White</td>
<td>465</td>
<td>12.9</td>
<td>13.4</td>
</tr>
</tbody>
</table>

For the socio-economic status variable, middle school students who paid for their lunch were absent significantly less (p = .000) than their junior high equivalent by 2.9 days. For those students on free/reduced lunch, absenteeism improved by 1.4 days but not quite at a significant level (p = .056). The disparity between the two groups may be of more concern than the
statistical analysis.

However, when the data are disaggregated by sex, it is noted that seventh grade middle school females were absent 14.5 days compared to 17.6 days for the junior high group with the difference of 3.1 being statistically significant ($p = .010$). Male middle school seventh graders only attended .9 days more frequently than the junior high seventh grade males and that was not a significant difference ($p = .403$).

The race data for seventh graders show Black and other students changing from 18.8 days absent as junior high school students to 16.3 days absent as middle school students ($p = .055$). White students showed a gain from 14.4 days absent to 12.9 days absent but the 1.5 days change is not significant ($p = .118$).

Similarly, when examining the data when comparing eighth grade middle school students to eighth grade junior high students, some sub-groups have varying results. Once again, males, as a sub-group, did not do as well as other sub-groups. The actual middle school absenteeism rate of 16.1 absences was only .7 better than the junior high school absenteeism rate of 16.8. There is obviously no significance here with $p = .566$. When considering socio-economic status for both groups of students, the results show significant improvement. The free/reduced lunch students showed gains from 24.9 days absent to 19.3 days absent ($p = .001$) and the paid lunch students showed
gains from 15.4 days absent to 12.6 days absent \((p = .003)\).

Table 8

<table>
<thead>
<tr>
<th>Variable</th>
<th>Middle School 1990-91</th>
<th>N</th>
<th>Mean</th>
<th>SD</th>
<th>Junior High 1988-89</th>
<th>N</th>
<th>Mean</th>
<th>SD</th>
<th>t</th>
<th>df</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>All</td>
<td>773</td>
<td>15.7</td>
<td>14.3</td>
<td></td>
<td>471</td>
<td>18.0</td>
<td>16.3</td>
<td></td>
<td>-2.57</td>
<td>1242</td>
<td>.010</td>
</tr>
<tr>
<td>Free/Reduced Lunch</td>
<td>357</td>
<td>19.3</td>
<td>16.8</td>
<td></td>
<td>125</td>
<td>24.9</td>
<td>17.3</td>
<td></td>
<td>-3.20</td>
<td>480</td>
<td>.001</td>
</tr>
<tr>
<td>Paid Lunch</td>
<td>416</td>
<td>12.6</td>
<td>10.9</td>
<td></td>
<td>346</td>
<td>15.4</td>
<td>15.1</td>
<td></td>
<td>-3.01</td>
<td>760</td>
<td>.003</td>
</tr>
<tr>
<td>Sex</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>415</td>
<td>16.1</td>
<td>14.5</td>
<td></td>
<td>229</td>
<td>16.8</td>
<td>14.4</td>
<td></td>
<td>-.57</td>
<td>642</td>
<td>.566</td>
</tr>
<tr>
<td>Female</td>
<td>358</td>
<td>15.2</td>
<td>14.1</td>
<td></td>
<td>242</td>
<td>19.1</td>
<td>17.9</td>
<td></td>
<td>-2.95</td>
<td>598</td>
<td>.003</td>
</tr>
<tr>
<td>Race</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Black &amp; Other</td>
<td>312</td>
<td>17.1</td>
<td>15.5</td>
<td></td>
<td>208</td>
<td>20.8</td>
<td>18.3</td>
<td></td>
<td>-2.43</td>
<td>518</td>
<td>.015</td>
</tr>
<tr>
<td>White</td>
<td>461</td>
<td>14.7</td>
<td>13.4</td>
<td></td>
<td>263</td>
<td>15.7</td>
<td>14.2</td>
<td></td>
<td>-.97</td>
<td>722</td>
<td>.331</td>
</tr>
</tbody>
</table>

The race data for eighth graders show Black and other students moving from 20.8 days absent as junior high school students to 17.1 days absent as middle school students. This is a significant change with \(p = .015\). White students showed a gain from 15.7 days absent to 14.7 days absent which is
not significant with $p = .331$.

**Achievement**

The second part of the null hypothesis for this investigation was that there is no difference between the academic achievement of middle school students and junior high students. The results from the Iowa Test of Basic Skills (1986) are used as the indicator of academic achievement. The Iowa Test of Basic Skills (1986) is a norm referenced test that is used to measure the district's academic success at each grade level. The composite percentile score is the specific data that are used for this investigation.

The results of the comparison for all middle school students with all junior high student for academic achievement are displayed in Table 9.

**Table 9**

**Middle School and Junior High School Achievement Data: Means (# of absences), Standard Deviations, and $p$ Value**

<table>
<thead>
<tr>
<th>Variable</th>
<th>Middle School 1990-91</th>
<th>Junior High 1988-89</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N</td>
<td>Mean</td>
</tr>
<tr>
<td>All</td>
<td>1416</td>
<td>48.0</td>
</tr>
</tbody>
</table>

For the middle school students during 1990-91, the mean percentile score for all students was 48.0 while the mean percentile score for all junior
high students during 1988-89 was 48.1. The t test for independent means indicates that this is not a significant difference ($p = .853$). This result indicates a .1 percentile decline in academic achievement when comparing all middle school students with all junior high students.

As a further analysis of these attendance data, the groups were tested several sub-groupings. Table 10 shows the statistical results when examining the groups by socio-economic status.

<table>
<thead>
<tr>
<th>Table 10</th>
</tr>
</thead>
<tbody>
<tr>
<td>Middle School and Junior High School Achievement Data by Socio-Economic Status, Means (# of absences), Standard Deviations, and $p$ Value</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Variable</th>
<th>Middle School 1990-91</th>
<th>Junior High 1988-89</th>
<th>t</th>
<th>df</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Free/Reduced Lunch</td>
<td>632 33.7 25.6</td>
<td>309 30.1 22.4</td>
<td>2.10</td>
<td>939</td>
<td>.036</td>
</tr>
<tr>
<td>Paid Lunch</td>
<td>784 59.5 54.5</td>
<td>882 54.5 28.6</td>
<td>3.51</td>
<td>1664</td>
<td>.000</td>
</tr>
</tbody>
</table>

Here we again find statistically significant differences with $p = .000$ for the paid lunch sub-group and $p = .036$ for the free/reduced lunch group. For

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middle school students on free/reduced lunch, the mean was 33.7 while for their junior high counterparts the mean percentile score was 30.1. For the students who have paid lunch, the middle school students scored 59.5 and their junior high counterparts scored 54.5.

Similarly, from Table 11, middle school males had a mean percentile score of 44.3 while junior high males scored 46.6. Even though this is a difference of 2.3 in the negative direction, it is not a statistically significant difference \( p = .158 \). Additionally, the middle school females had a mean percentile score of 52.0 which was not significantly different \( p = .169 \) than the mean percentile score of 49.7 for junior high girls.

### Table 11

<table>
<thead>
<tr>
<th>Variable</th>
<th>Middle School 1990-91</th>
<th>Junior High 1988-89</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N</td>
<td>Mean</td>
</tr>
<tr>
<td>Sex</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>739</td>
<td>44.3</td>
</tr>
<tr>
<td>Female</td>
<td>677</td>
<td>52.0</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>t</th>
<th>df</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>-1.41</td>
<td>1327</td>
<td>.158</td>
</tr>
<tr>
<td>Female</td>
<td>1.377</td>
<td>1276</td>
<td>.169</td>
</tr>
</tbody>
</table>

In Table 12, the data by race are similar. Minority students (Black and other) had a percentile score of 31.5 as middle school students while their
counterparts as junior high school students scored 34.4. This negative
difference was not statistically significant with $p = .055$. For white students the
difference was also not statistically significant with $p = .958$. Middle school
white students had an identical mean percentile score of 59.1 as white junior
high school students.

Table 12
Middle School and Junior High School Achievement Data
by Race, Means, (# of absences), Standard
Deviations, and $p$ Value

<table>
<thead>
<tr>
<th>Variable</th>
<th>Middle School 1990-91</th>
<th></th>
<th></th>
<th>Junior High 1988-89</th>
<th></th>
<th></th>
<th>t</th>
<th>df</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N</td>
<td>Mean</td>
<td>SD</td>
<td>N</td>
<td>Mean</td>
<td>SD</td>
<td>t</td>
<td>df</td>
<td>p</td>
</tr>
<tr>
<td>Race</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Black &amp; Other</td>
<td>571</td>
<td>31.5</td>
<td>24.7</td>
<td>527</td>
<td>34.4</td>
<td>24.0</td>
<td>-1.92</td>
<td>1096</td>
<td>.055</td>
</tr>
<tr>
<td>White</td>
<td>845</td>
<td>59.1</td>
<td>28.8</td>
<td>664</td>
<td>59.1</td>
<td>28.2</td>
<td>-1.05</td>
<td>1507</td>
<td>.958</td>
</tr>
</tbody>
</table>

With these data, we can not reject the null hypothesis that there is no
difference in the achievement level for middle school students when compared
to junior high school students. Even though most of the data are in the
direction of improved scores, the composite data do not show a significant
difference and therefore, the conclusion is that there is no difference in
academic achievement for middle school students when compared to junior
high school students.

Further analysis of the achievement data allows for a comparison by grade for students at each type of school. We can compare the achievement level for middle school seventh graders with the achievement level for junior high seventh graders as well as eighth grade middle school to eighth grade junior high students.

Table 13 is the complete analysis for seventh grade students. Even though there was no significant difference when examining the composite group, when the data are disaggregated by the variables of socio-economic status, sex, and race we find some interesting sub-group statistics that are worthy of further analysis.

For the socio-economic status variable, middle school students who paid for their lunch had a mean percentile score that was significantly more than their junior high equivalent ($p = .000$).

For those students with paid lunch, achievement scores improved from 53.7 for junior high school students to 62.1 for middle school students. For all other subgroups of seventh graders, the middle school students achieved at higher levels than did the junior high students but none of the differences were significant at the $p = .05$ level. Beyond the statistical analysis within the subgroups, the disparity between the subgroups is apparent and should be further considered.
Table 13
Seventh Grade Achievement Data: Means (# of absences), Standard Deviations, and p Value

<table>
<thead>
<tr>
<th>Variable</th>
<th>Middle School 1990-91</th>
<th>Junior High 1988-89</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N</td>
<td>Mean</td>
</tr>
<tr>
<td>All</td>
<td>681</td>
<td>48.2</td>
</tr>
<tr>
<td>Socio-Economic Status</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Free/ Reduced Lunch</td>
<td>327</td>
<td>33.1</td>
</tr>
<tr>
<td>Paid Lunch</td>
<td>354</td>
<td>62.1</td>
</tr>
<tr>
<td>Sex</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>330</td>
<td>46.8</td>
</tr>
<tr>
<td>Female</td>
<td>351</td>
<td>49.5</td>
</tr>
<tr>
<td>Race</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Black &amp; Other</td>
<td>285</td>
<td>35.0</td>
</tr>
<tr>
<td>White</td>
<td>396</td>
<td>57.8</td>
</tr>
</tbody>
</table>

Similarly, when examining the data (Table 14) to compare the achievement results of eighth grade middle school students to the achievement...
results of eighth grade junior high students, some sub-groups have varying results. Once again, the disaggregated data show gains by both group for socioeconomic status. The free/reduced lunch students showed gains from 30.6 to 33.7 ($p = .195$) and the paid lunch students showed gains from a mean percentile score of 55.3 as junior high students to a 60.1 for middle school.

Table 14

Eighth Grade Achievement Data: Means (# of absences), Standard Deviations, and $p$ Value

<table>
<thead>
<tr>
<th>Variable</th>
<th>Middle School 1990-91</th>
<th>Junior High 1988-89</th>
<th>t</th>
<th>df</th>
<th>$p$</th>
</tr>
</thead>
<tbody>
<tr>
<td>All</td>
<td>N: 682, Mean: 48.4, SD: 30.8</td>
<td>N: 618, Mean: 49.0, SD: 29.5</td>
<td>-.32</td>
<td>1298</td>
<td>.748</td>
</tr>
<tr>
<td>Free/Reduced Lunch</td>
<td>N: 301, Mean: 33.7, SD: 25.8</td>
<td>N: 158, Mean: 30.6, SD: 22.7</td>
<td>1.30</td>
<td>457</td>
<td>.195</td>
</tr>
<tr>
<td>Paid Lunch</td>
<td>N: 381, Mean: 60.1, SD: 29.4</td>
<td>N: 460, Mean: 55.3, SD: 29.0</td>
<td>2.36</td>
<td>839</td>
<td>.019</td>
</tr>
<tr>
<td>Sex</td>
<td>N: 355, Mean: 43.7, SD: 31.1</td>
<td>N: 307, Mean: 47.3, SD: 29.0</td>
<td>-1.50</td>
<td>660</td>
<td>.135</td>
</tr>
<tr>
<td>Male</td>
<td>N: 327, Mean: 53.5, SD: 29.7</td>
<td>N: 311, Mean: 50.7, SD: 30.0</td>
<td>1.21</td>
<td>636</td>
<td>.227</td>
</tr>
<tr>
<td>Race</td>
<td>N: 278, Mean: 31.2, SD: 24.6</td>
<td>N: 275, Mean: 34.7, SD: 24.2</td>
<td>-1.74</td>
<td>551</td>
<td>.082</td>
</tr>
<tr>
<td>Black &amp; Other</td>
<td>N: 404, Mean: 60.3, SD: 28.9</td>
<td>N: 343, Mean: 60.4, SD: 28.4</td>
<td>-.02</td>
<td>745</td>
<td>.988</td>
</tr>
</tbody>
</table>

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This gain of 4.8 percentiles was a significant difference with $p = .019$. It is again interesting to note that when the data are disaggregated by socioeconomic status significant differences occur that will require further analysis. It is apparent that the needs of particular subgroups of students are being more adequately addressed than others.

For the other subgroups, the results were not so positive. Middle school males had a mean percentile score of 43.7 which was lower than the junior high school mean percentile score of 47.3. Middle school females scored 53.5 which was 2.8 percentile points higher than the 50.7 of junior high females. The race data for eighth graders show Black and other students achieving at the 34.7 percentile level as junior high school students and decreasing to the 31.2 percentile level as middle school students. This is a significant difference with $p = .082$. White students also showed a decrease from 60.3. Even though neither change is statistically significant, this is certainly information that must be considered as a result of this investigation.

Summary

As a group, middle school students are attending school more regularly than did their junior high counterparts but there is no difference in the academic achievement between the groups. Because of the large data base, including the three variables of race, sex, and socioeconomic status, there is a great
deal of data to be analyzed beyond the research question.
CHAPTER V

CONCLUSIONS AND RECOMMENDATIONS

Introduction

The purpose of this study was to consider the comparison of the achievement and the attendance of middle school students with junior high school students. In this chapter the findings of the research will be discussed. The limitations of the study will be considered as well as the value of the study and the recommendations for future research.

Conclusions

The literature that was reviewed for this investigation indicated that there was not yet research to support the middle level education movement. Early studies from the 1960s and 1970s indicated that the research results were varied and inconclusive. It was also believed that this inconclusive research was the result of schools being called middle schools without the essential components to really impact the institutional program. For this investigation it was decided that we would first determine that the middle schools to be studied did, in fact, have several essential middle school components in place.

60
The hypothesis for this research was that there was no difference in the achievement level nor the attendance pattern for middle school students when compared to junior high school students. It was concluded that there were statistically significant differences in the attendance of middle school students when compared to their junior high counterparts at the .05 level of significance. The middle school students are indeed as a group attending school more regularly. When the data were further analyzed using disaggregated data by race, sex, and socioeconomic status, it was found that all subgroups showed significant gains with the exception of males where the level of significance was $p = .063$.

However, when examining the achievement data it was found that, as a group, middle level students were not achieving significantly higher than their junior high counterparts at the .05 level of significance. Therefore, it is concluded that there is no difference in the achievement level of middle school students and junior high students but that there are data that are worthy of further study. It is interesting to note that when the larger group was disaggregated by socio-economic status, the middle school students achieved significantly higher within both the socio-economic sub-groups of free/reduced lunch and paid lunch. For each of the other subgroups the data vary from small gains to actual losses. Even though it is not at a significant level, the losses by both the male and Black subgroups should cause further
investigation. There is reason to believe that even though a particular set of middle school essential components has been implemented the instructional strategies may not yet have been altered. The instructional delivery of teachers is perhaps an additional key ingredient to affect academic growth at the middle level. When considering these conclusions some of the limitations of this study should be kept in mind.

Limitations

This investigation was limited to a single school district with a uniform plan for implementation of middle level essential components. The program being implemented was uniformly administered across the school district, and this investigation was completed at the end of the second year of that process. Even though the whole group being studied was very similar in characteristics in relationship to the variables of sex, race and socio-economic status, many student scores were not available for both populations due to large amounts of mobility of the students.

It is a further belief, that even when the essential components of middle level education are implemented, we will not see growth in student achievement until the instructional strategies including interdisciplinary units are fully in place. The instructional teams for the Kalamazoo Public Schools are part of the middle school structure but the installation of interdisciplinary units
with diverse instructional strategies has yet to be accomplished.

Value of the Study

Because of the tremendous amount of time and resources that are expended to modify an educational program as drastically as a move from junior high to middle schools, it is important that we carefully evaluate this change. Regardless of the reason for change, whether it be space limitations, staffing issues, desegregation concerns, or whatever, the change should be positive for students. The findings of this research collaborate with other research findings that students are more comfortable and care more about their school in a middle school setting which is evidenced by a more regular attendance pattern.

This research will be of continuing value to the Kalamazoo Public Schools and others interested in middle level research in that it provides support for the argument that middle schools can provide an improved educational experience for middle level youngsters.

Future Research Recommendations

While it is encouraging to note some successes of the middle school with this research, the more careful analysis of the disaggregated groups shows that several sub-groups are still not doing well in achievement in the
middle school setting. The current impetus to restructure the instructional delivery program for middle school curriculum may very well lead to improved achievement over the next several years. The impact of accelerated learning, cooperative learning, interdisciplinary thematic instruction and technical advances for instructional delivery will hopefully impact student achievement for the middle school group. After this is accomplished, it would be appropriate to again compare the achievement of middle school students with the junior high school students. This investigation did demonstrate that the middle school program is at least as effective as was the junior high program and, in fact, somewhat better in some areas. For the Kalamazoo Public Schools, additional work needs to be done in the area of the instructional program but the implementation of the middle school program is a positive step forward.
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