

INFORMATION TO USERS

This manuscript has been reproduced from the microfilm master. UMI films the text directly from the original or copy submitted. Thus, some thesis and dissertation copies are in typewriter face, while others may be from any type of computer printer.

The quality of this reproduction is dependent upon the quality of the copy submitted. Broken or indistinct print, colored or poor quality illustrations and photographs, print bleedthrough, substandard margins, and improper alignment can adversely affect reproduction.

In the unlikely event that the author did not send UMI a complete manuscript and there are missing pages, these will be noted. Also, if unauthorized copyright material had to be removed, a note will indicate the deletion.

Oversize materials (e.g., maps, drawings, charts) are reproduced by sectioning the original, beginning at the upper left-hand corner and continuing from left to right in equal sections with small overlaps. Each original is also photographed in one exposure and is included in reduced form at the back of the book.

Photographs included in the original manuscript have been reproduced xerographically in this copy. Higher quality 6" x 9" black and white photographic prints are available for any photographs or illustrations appearing in this copy for an additional charge. Contact UMI directly to order.

U·M·I

University Microfilms International
A Bell & Howell Information Company
300 North Zeeb Road, Ann Arbor, MI 48106-1346 USA
313/761-4700 800/521-0600

Order Number 9314638

A comparative study of the Michigan Educational Assessment Program results between selected traditional junior high schools and middle schools in the state of Michigan to determine the organizational structure in which grade seven students are most successful

Barris, Thomas Nickolas, Ph.D.

Michigan State University, 1992

U·M·I

**300 N. Zeeb Rd.
Ann Arbor, MI 48106**

**A COMPARATIVE STUDY OF THE MICHIGAN EDUCATIONAL
ASSESSMENT PROGRAM RESULTS BETWEEN SELECTED TRADITIONAL
JUNIOR HIGH SCHOOLS AND MIDDLE SCHOOLS IN THE STATE OF
MICHIGAN TO DETERMINE THE ORGANIZATIONAL STRUCTURE IN
WHICH GRADE SEVEN STUDENTS ARE MOST SUCCESSFUL**

By

Thomas N. Barris

A DISSERTATION

**Submitted to
Michigan State University
in partial fulfillment of the requirements
for the degree of**

DOCTOR OF PHILOSOPHY

Department of Educational Administration

1992

ABSTRACT

A COMPARATIVE STUDY OF THE MICHIGAN EDUCATIONAL ASSESSMENT PROGRAM RESULTS BETWEEN SELECTED TRADITIONAL JUNIOR HIGH SCHOOLS AND MIDDLE SCHOOLS IN THE STATE OF MICHIGAN TO DETERMINE THE ORGANIZATIONAL STRUCTURE IN WHICH GRADE SEVEN STUDENTS ARE MOST SUCCESSFUL

By

Thomas N. Barris

The purpose of this study was to compare Michigan Educational Assessment Program (MEAP) results between traditional junior high and middle schools and to determine the organizational structure in which seventh grade students are most successful and continue to show their success in grade ten. Grade configurations distinguished the junior high from the middle school. A junior high school was defined as a school that was designated as one between elementary and high school, and includes grades seven, eight, and nine. Whereas, a middle school was defined as a school that was designated as one between elementary and high school, and included grades six, seven, and eight.

The population sampled was the twenty-seven Michigan urban public school districts that form the Middle Cities Educational Association (MCEA) during the 1985-86 school year. The Executive

Director of MCEA was enlisted as an expert to select a sample of four junior high MCEA districts and four middle school MCEA districts. Comparisons of the two sampled groups showed them to be the same or somewhat similar in the following areas: the number of schools represented at the seventh grade level, current operating expenditures per pupil, average teacher salaries, and racial/ethnic composition of the student body.

The study employed the causal comparative method with the junior high sample as a control/comparison group for the middle school sample. The middle school experience in grades six through eight served as the independent variable.

The MEAP results in reading and mathematics in 1985-86 (seventh grade) and 1988-89 (tenth grade) served as the dependent variable. The data were reported out in categories of achievement ranging from one (lowest) to four (highest). The nominal form of measurement required the use of a non-parametric statistic to test the four research hypotheses.

The chi-square test using a two by four contingency table matrix for the calculation of expected frequencies from the observed frequencies was employed. The observed category of achievement results by school were equal weighted by assigning each a total frequency count of 100. All four hypotheses recorded significant findings (alpha level .05). These significant findings in reading and mathematics at grades seven and ten in favor of the middle school grouping over the traditional junior high counters the findings of other

past researchers that found no significant difference in mathematics and/or reading.

A single study cannot cover the multitude of questions related to middle schools versus junior highs and academic achievement. This study stands as one causal comparative study suggesting that middle schools are superior in academic achievement as measured by MEAP to junior highs in Middle Cities Educational Association (MCEA) districts in the State of Michigan.

Copyright by

Thomas Nickolas Barris

1992

TO MY WIFE MARGARET R., MY
CHILDREN NICKOLAS T. AND JULIE H., AND
MY FATHER NICKOLAS G. BARRIS. IN MEMORY OF MY MOTHER,
GEORGIA MILIONIS BARRIS.

ACKNOWLEDGMENTS

It is with sincere appreciation and a deep sense of humility that I acknowledge the many individuals whose professional and personal support and encouragement made it possible for me to complete this study.

For his encouragement, support and guidance, I extend deep appreciation to my advisor, Dr. Louis G. Romano, whose devotion to middle level education is unsurpassed. To the members of my committee, Drs. Michael A. Boulus, C. Keith Groty and R. Arden Moon, I wish to express my gratitude for their assistance and council. The patience, understanding and professional character of these individuals has been and will always be an inspiration to me.

A sincere thanks to Dr. Richard N. Claus for his consultation and professional assistance in analyzing the data of this study. A special thank-you to Debra Flores-Cortez, who gave countless hours to typing the original dissertation drafts. My appreciation to Terry L. Darland and Gwen A. Laszlo for their professional assistance as typists in preparing the dissertation manuscript.

Finally, I wish to express my deep and sincere gratitude to my family and friends. I have dedicated this dissertation to my family: namely, my wife Margaret, without her support, endless patience, enthusiasm, and love the completion of my doctoral program would not

have been possible. Son Nickolas and daughter Julie, I deeply appreciate your understanding and cooperation while I was completing the course work and writing the manuscript. At age ninety-one, my father Nickolas G. Barris still provides the inspiration and the strength for me to continue the rigors of being a student, working, and not losing sight of the importance of my family. Lastly to my mother, whose death during the writing of this dissertation has had a profound effect on my life; nevertheless, the strength of her love has given me the will and focus to continue this study.

TABLE OF CONTENTS

	Page
LIST OF TABLES	viii
LIST OF FIGURES	x
CHAPTER 1: THE PROBLEM	1
PURPOSE OF THE STUDY	2
IMPORTANCE AND BACKGROUND OF THE STUDY	3
DEFINITION OF TERMS	7
Academic Achievement	7
Articulation/Transition.....	7
Feeder School Reports	7
Grade Configuration	7
Junior High School	8
MCEA	8
MEAP Test	8
Middle School	8
Pre or Early Adolescents	8
Transescence	8
ASSUMPTIONS AND LIMITATIONS OF THE STUDY	9
HYPOTHESES	9
SUMMARY AND ORGANIZATION OF THE DISSERTATION	11
CHAPTER 2: REVIEW OF LITERATURE AND RESEARCH	13
HISTORICAL DEVELOPMENT OF THE AMERICAN JUNIOR HIGH SCHOOL	13
HISTORICAL DEVELOPMENT OF THE AMERICAN MIDDLE SCHOOL	22

TABLE OF CONTENTS (CONT.)

	Page
RESEARCH FINDINGS ON THE EFFECTS OF GRADE ORGANIZATION OR GRADE CONFIGURATION ON STUDENT'S ACADEMIC ACHIEVEMENT	31
SUMMARY	41
CHAPTER 3: METHODOLOGY	44
POPULATION	44
SAMPLE SELECTION	45
DESCRIPTION OF SAMPLE	47
HYPOTHESES	52
DESIGN AND INSTRUMENTATION	54
Design	54
Instrumentation	55
Technical Characteristics	60
DATA GATHERING PROCEDURES	61
DATA ANALYSIS PROCEDURES	62
SUMMARY	64
CHAPTER 4: ANALYSIS OF RESULTS	65
INDEPENDENT VARIABLES	65
DEPENDENT VARIABLES	66
HYPOTHESES	66
SUMMARY OF FINDINGS	74
OVERVIEW	75

TABLE OF CONTENTS (CONT.)

	Page
CHAPTER 5: REVIEW OF THE STUDY, SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS	76
REVIEW OF THE STUDY	76
SUMMARY	78
CONCLUSIONS	80
Discussion	80
RECOMMENDATIONS	83
Recommendations for Practice	83
Recommendations for Further Research	84
APPENDIX A: MEAP: The Skill Areas Assessed	86
APPENDIX B: Percent Mastery in Mathematics and Reading by Category of Achievement for Selected Middle Schools and Junior Highs on the Seventh Grade 1985-86 and Tenth Grade 1988-89 <u>Michigan Educational Assessment</u> <u>Program</u> (MEAP)	87
BIBLIOGRAPHY	91

LIST OF TABLES

Table	Page
3.1 Count of Junior High/Middle Schools and Aggregate Enrollment Taking Seventh Grade MEAP for the Selected Junior High and Middle School Districts, 1985-86 School Year	48
3.2 Current Operating Expenditures (COE) Per Pupil for Selected Junior High School and Middle School Districts 1982-86	49
3.3 Teachers' Average Salary for Selected Junior High and Middle School Districts, 1982-86	50
3.4 Number and Percent of Junior/Middle Students in the Selected Junior High and Middle School Districts by Racial/Ethnic Category, 1985-86	51
3.5 Number of Objectives and Items Used in the Reading and Mathematics <u>Michigan Educational Assessment Program (MEAP)</u> for Grades Seven and Ten	58
3.6 Range of <u>Michigan Educational Assessment Program (MEAP)</u> Objective Attainments in Reading and Mathematics for Each Category of Achievement, 1985-89	59
4.1 Chi-Square Test Result for Hypothesis One	68
4.2 Chi-Square Test Result for Hypothesis Two	70
4.3 Chi-Square Test Result for Hypothesis Three	71
4.4 Chi-Square Test Result for Hypothesis Four	73
4.5 Summary of Chi-Square Results Related to Four Hypotheses Contrasting Middle and Junior High School MEAP Categories of Achievement	74
A.1 MEAP: The Skill Areas Assessed	86

LIST OF TABLES (CONT.)

Table	Page
B.1 Percent Mastery in Mathematics by Category of Achievement for Selected Middle Schools and Junior Highs on the Seventh Grade <u>Michigan Educational Assessment Program (MEAP), 1985-86</u>	87
B.2 Percent Mastery in Reading by Category of Achievement for Selected Middle Schools and Junior Highs on the Seventh Grade <u>Michigan Educational Assessment Program (MEAP), 1985-86</u>	88
B.3 Percent Mastery in Mathematics by Category of Achievement for Selected Middle Schools and Junior Highs on the Tenth Grade <u>Michigan Educational Assessment Program (MEAP), 1988-89</u>	89
B.4 Percent Mastery in Reading by Category of Achievement for Selected Middle Schools and Junior Highs on the Tenth Grade <u>Michigan Educational Assessment Program (MEAP), 1988-89</u>	90

LIST OF FIGURES

Figure	Page
3.1 Static-Group Comparison	55
3.2 Chi-Square Contingency Table Layout Used for Each Hypothesis	62
4.1 Observed and (Expected) Frequencies for the Contingency Table Related to Hypothesis One--Seventh Grade Mathematics	68
4.2 Observed and (Expected) Frequencies for the Contingency Table Related to Hypothesis Two--Seventh Grade Reading	69
4.3 Observed and (Expected) Frequencies for the Contingency Table Related to Hypothesis Three--Tenth Grade Mathematics	71
4.4 Observed and (Expected) Frequencies for the Contingency Table Related to Hypothesis Four--Tenth Grade Reading	73

CHAPTER 1: THE PROBLEM

The most appropriate grade configuration for preadolescent or early adolescents has been a subject of debate among researchers for quite sometime. The absence of agreement among researchers on an appropriate grade configuration is evidenced by the lack of consistency in school organization across the county. Neither in theory nor in practice have educators been able to agree on the best organization of the middle grades.

The attempt to find the best or most appropriate grade configuration for preadolescents and early adolescents played a major role in the development of both the junior high school and the middle school. The junior high school has existed for some 80 years, while the middle school is now a surprising 30 years old. Research on the attributes of both the junior high and middle school continues, and has raised as many questions as it has answered. However, of all the questions raised about middle - grade education, the most prevalent is, **"What is the best or most appropriate grade configuration to achieve optimum academic results?"**

PURPOSE OF THE STUDY

The purpose of this study is to determine if there is a difference in the Michigan Educational Assessment Program (MEAP) results among students in a traditional junior high grouping versus a middle school grouping. The study compares the MEAP results of selected junior high schools with middle schools for grade seven. The same comparison are to be done when these students are in grade ten. Based upon the findings of this study, a recommendation as to the organizational structure in which grade seven is most appropriate to achieve optimum academic results will be offered.

A review of the literature reveals an abundance of research dealing with student performance on standardized tests like the MEAP; however, there appears to be limited research available dealing with the optimum or best grade configuration associated with students taking these tests.

A comparative analysis of the results of students in both a traditional junior high grouping and a middle school grouping should give additional support to school districts in assessing and determining the most appropriate grade configuration to achieve optimum academic results.

IMPORTANCE AND BACKGROUND OF THE STUDY

The Michigan Educational Assessment Program (MEAP) is a standardized test administered, yearly, to students in grades four, seven, and ten. The MEAP is responsible for measuring the extent to which Michigan students have mastered specified basic skills. Since 1969, MEAP has provided information to the Governor, Legislature, State Board of Education, citizens, local school districts, teachers, parents and students on the status and progress of Michigan basic skills education. Students are tested on their basic knowledge of vocabulary, reading comprehension, English usage, and mathematics. The MEAP is a statewide testing program initiated by the State Board of Education, supported by the Governor and funded by the legislature.

According to the Michigan Educational Assessment Program Handbook (1989), the first four years of the assessment program (1969-1973) used standardized norm-referenced tests designed to rank students from highest to lowest in each of four subject areas (vocabulary, reading comprehension, English usage, and arithmetic). The information provided by these tests did not adequately serve the purpose of MEAP to provide information on the status and progress of Michigan basic skills education. An alternative method of assessing student achievement was needed (p. 1).

Due to the prevailing need to provide an alternative method of assessing student achievement, MEAP officials launched the following initiative in the Fall of 1971. Again, according to the MEAP Handbook, the Fall of 1971, referent groups were formed to develop specific performance objectives in the basic skills areas. The groups were

composed of local, state, and higher education curriculum specialists and teachers from throughout Michigan ... The final objectives were approved and adopted by the State Board of Education. Objective-referenced tests were developed by Michigan educators to measure specified basic skills attainment.

For the purpose of this study, the single, most prevailing and distinguishing feature between the traditional junior high and the middle school is their grade configurations. Grade configurations do distinguish junior highs from the middle schools. A junior high school is defined as a school that includes grades seven, eight, and nine. Whereas, a middle school is defined as a school that includes grades six, seven, and eight.

The most appropriate grade configuration for preadolescent or early adolescents has been a subject of debate among researchers for quite sometime. The absence of agreement among researchers on an appropriate grade configuration is evidenced by the lack of consistency in school organization across the country. Schools have been arranged in a variety of grade combinations to meet a variety of needs--some educational, others that appear expeditious. Neither in theory nor in practice have educators been able to agree on the best organization of the middle grades. In 1959, as educators served on the National Association of Secondary School Principals' Committee on Junior High School Education, they endorsed a seventh through ninth grade arrangement as the most appropriate combination for the middle years. Other educators, such as William Alexander, favored either the fifth or sixth through eighth grade combination. Still other educators, such as

James Conant, believed that it did not matter how schools were organized so long as they provided quality programs.

This debate raised a number of important issues that researchers have tried to answer. Central to the discussion, however, was an issue that research alone could not address, for it involved the responsibility of the schools and of society toward those young people undergoing the profound physical, emotional, and psychological changes associated with puberty. Educators have raised the issue of whether the schools have a responsibility to protect students from growing up too fast. Questions dealing with the most appropriate grade configuration associated with the academic success of seventh graders, will be the subject of further investigation in Chapter 2.

The attempt to find the best or most appropriate grade configuration for preadolescents and early adolescents played a major role in the development of both the junior high school and the middle school. Both Samuel Popper, who defended junior high schools, and William Alexander, known as the father of the middle school movement, recognized grade configuration as one of the basic issues separating junior high schools from middle schools. According to Popper (1967), the "professional dialogue" on this issue focused on which grades are functionally appropriate for this unit of public school organization. Research indicates that Alexander saw a broader debate, but one that began with grade placement. Alexander (1978) observed that conflicting opinions arise as to the years and grades, if any the specifics of the program; and the relation to the existing establishments in elementary, secondary, and teacher education. Although other issues

impinged on the discussion, the subject of the review of literature (Chapter 2) will revolve around grade configuration and organization.

Further, a brief review of the literature and research, with respect to the effects of grade organization on students, indicates grade organization appears to have little or no influence on a student's academic achievement. Research by Donald Stout (1962) concluded that organizational factors in and of themselves did not discriminate between the two groups of schools. He found that attitudes, services, and interpersonal relations within the school community were more important in determining the achievement level of students.

Stout (1962) further stated, the central factor in the differences between the two groups of schools was observed to be the extent to which the staff had motivation and actively sought to make provisions for the needs of pupils. A study by Richard Wolfe (1972) supports the findings of Stout inasmuch as grade pattern has no significant effect on achievement. Wolfe concluded that in planning the grade arrangement patterns for the in-between years, decision makers may utilize any one of the designs which fit their local needs.

Therefore, a major focus of this study, as measured by the research, is to determine to what extent grade organization may exert influence on a student's academic achievement.

DEFINITION OF TERMS

The following terms are defined in the context in which they are used in this dissertation.

Academic Achievement

The skill or knowledge attained by an individual in one or more fields, as measured in this study by the Michigan Educational Assessment Program (MEAP) test.

Articulation/Transition

Relationships with the elementary school, design to make the transition to middle school and/or junior high school smooth; and the relationship with the high school, to make the transition of students into that school effective.

Feeder School Reports

Reports that are intended for use by the junior highs and middle schools which feed students into the high schools. The Feeder School Report shows how all students in a particular junior high/middle school performed on the assessment tests, the feeder school can use this information to analyze the strengths and weaknesses of its instructional programs (Michigan Educational Assessment Program Handbook, 1985-86, p. 23).

Grade Configuration

The span of grades that comprise a given school.

Junior High School

A school that is designated as one between elementary and high school, includes grades seven, eight, and nine.

MCEA

The Middle Cities Educational Association, a group of urban school districts in the State of Michigan who came together to share concerns and coordinate efforts to meet the needs of urban children.

MEAP Test

The Michigan Educational Assessment Program test, a standardized objective referenced test administered, yearly, to students in grades four, seven, and ten.

Middle School

A school that is designated as one between elementary and high school, includes grades six, seven, and eight.

Pre or Early Adolescents

Children that are 10 to 14 years of age and constitutes a distinct stage of development involving similar physical, emotional, social, and intellectual characteristics.

Transescence

The stage of development which begins prior to the onset of puberty and extends through the early stages of adolescence.

ASSUMPTIONS AND LIMITATIONS OF THE STUDY

The design of this study is based on certain assumptions and limitation. They include the following:

1. It will be assumed in this study, from the research that has been done on the effects of grade organization or grade configuration on students, that grade organization or grade configuration has little or no influence on a student's academic achievement.
2. The study is limited to the appropriate placement of grade seven as either part of a junior high or a middle school grouping.
3. The sole predictor, with respect to academic achievement, will be the results of the 1985-1986 seventh grade MEAP test and the 1988-1989 tenth grade MEAP test for selected junior high and middle schools.
4. The study is limited to academic achievement, as evidenced by the results of the MEAP test, other characteristics such as but not limited, to the physical, social and emotions needs normally associated with pre or early adolescents, will not be a subject of this study.

HYPOTHESES

The primary focus of this study was upon the difference, if any, in academic achievement among students in a traditional junior high grouping as compared to students in a middle school grouping. The following hypotheses were formulated to guide the analysis of data for this study.

First, a set of seventh grade and then a set of tenth grade hypotheses will be presented.

Hypotheses Regarding Seventh Grade Achievement

Hypotheses 1:

Null Hypothesis: There is no difference between the two groups (middle school and junior high) in the proportion of the members in each of the four MEAP mathematics achievement categories.

Alternate Hypothesis: A greater proportion of the middle school students are in higher MEAP mathematics achievement categories than is the case for those who are in junior high schools.

Hypotheses 2:

Null Hypothesis: There is no difference between the two groups (middle school and junior high) in the proportion of the members in each of the four MEAP reading achievement categories.

Alternate Hypothesis: A greater proportion of the middle school students are in higher MEAP reading achievement categories than is the case for those who are in junior high schools.

Hypotheses Regarding Tenth Grade Achievement

Hypothesis 3:

Null Hypothesis: There is no difference between the two groups (middle school and junior high) in the proportion of the members in each of the four MEAP mathematics achievement categories.

Alternate Hypothesis: A greater proportion of the students from the middle school are in higher MEAP mathematics achievement categories than is the case for those who are in junior high schools.

Hypothesis 4:

Null Hypothesis: There is no difference between the two groups (middle school and junior high) in the proportion of the members in each of the four MEAP reading achievement categories.

Alternate Hypothesis: A greater portion of the students from the middle school are in the higher MEAP reading achievement categories than is the case for those who are in junior high schools.

SUMMARY AND ORGANIZATION OF THE DISSERTATION

The most appropriate grade configuration for preadolescent or early adolescents has been a subject of debate among researchers for quite sometime. The absence of agreement among researchers on an appropriate grade configuration is evidenced by the lack of consistency in school organizations across the country. In order to determine the most appropriate organizational structure in which grade seven students are most successful, a comparative study of the results of the seventh grade and tenth grade Michigan Educational Assessment Program (MEAP) was undertaken. The study compared the 1985-86 results of seventh grade students in traditional junior high schools with the results of seventh grade students in middle schools from those school districts that form the Middle Cities Educational Association. The same comparison using 1988-89 feeder school results was done, with the same students, when they were in grade ten.

This dissertation is divided into five chapters. Chapter 1 contained an introduction to the study, purpose of the study, importance and background of the study, definitions of terms, assumptions and limitations, and hypotheses. Chapter 2 contains a review of the literature related to this research. The focus is on the effects of grade organization or grade configuration on students' academic achievement.

Chapter 3 provides a description of the methods and procedures used to determine if there was a difference in the MEAP results among students in a traditional junior high grouping versus a middle school grouping. This chapter is divided into the following:

population, sample selection, description of sample, hypotheses, design and instrumentation, data gathering procedures, data analysis procedures, and summary.

Chapter 4 is devoted to the presentation and interpretation of the data. The chapter is divided into the following: independent variables, dependent variables, hypotheses related to seventh grade, hypotheses related to tenth grade, summary of findings and overview. Chapter 5 includes a review of the study, summary and recommendations. Additional sections of this chapter contain discussion concerning the summary of past research and recommendations for further research.

CHAPTER 2: REVIEW OF LITERATURE AND RESEARCH

This chapter provides the review of related literature and research on the effects of grade organization or grade configuration on student's academic achievement. The chapter is divided into the following: historical development of the junior high school, historical development of the middle school, and research findings pertinent to the effects of grade organization/configuration on student's academic achievement.

HISTORICAL DEVELOPMENT OF THE AMERICAN JUNIOR HIGH SCHOOL

In the late 1800's and early 1900's, a number of national committees and commissions were organized to study secondary education. The charge of these committees and commissions was to conduct an evaluation of existing secondary education and make recommendations regarding possible reorganization. Post Civil War period resulted in a rapid growth of high schools in the United States. Howard and Stoumbis (1970) discovered that some sections of the country operated under an 8-5 plan - this is eight years of elementary school and five years of high school. While other systems 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 (p. 6).

Early educators differed on not only the main purpose of secondary education but also on the school organization that best housed it. Some viewed secondary education as a preparation for college, while others advanced the notion that the main purpose of secondary education was the preparation for life outside the classroom. Responding to the early thought that the seventh and eighth grades were intended to review what had been taught during the first six years of schooling, and the 8-4 organizational pattern, Eliot (1888) indicated that, "it was wasted time that schools could better spend preparing students for college." Eliot's remarks launched a series of committees to evaluate education in the United States. The first, and said to be the most famous was the Committee of Ten, chaired by Eliot himself in 1894. The Committee of Ten was one of the most influential in American education and stressed that high school subjects such as algebra and foreign languages be initiated in the last years of the elementary school. The Committee further recommended the expansion of the secondary school program to sixth grade, and a 6-6 pattern of schooling (National Educational Committee on Secondary School Studies, 1969, p. 249).

Further support for reorganization and for a separate junior high unit was summarized well by the Commission on Reorganization of Secondary Education (1918). Citing the following paragraphs below, from the Seven Cardinal Principles, gives further insight into the attempt to establish an educational unit with a number of clear functions, an identity of its own, which, theoretically at least, was more child centered than college preparatory centered:

The eight years heretofore given to elementary education have not, as a rule, been effectively utilized. The last two of these years in particular have not been well adapted to the needs of the adolescent ... We believe that much of the difficulty will be removed by a new type of secondary education beginning at about 12 or 13. Furthermore, the period of four years now allotted to the high school is too short a time in which to accomplish the work outlined above.

We, therefore, recommend a reorganization of the school system whereby the first six years shall be devoted to elementary education designed to meet the needs of pupils approximately 6 to 12 years of age; and the second six years to secondary education designed to meet the needs of pupils approximately 12 to 18 years of age.

The six years to be devoted to secondary education may well be divided into two periods which may be designated as the junior and senior periods. In the junior period emphasis should be placed upon the attempt to help the pupil explore his own aptitudes and to make at least provisional choice of the kinds of work to which he shall devote himself. In the senior period emphasis should be given to training in the fields thus chosen. This distinction lies at the basis of the organization of the junior and senior high schools.

In the junior high school there should be a gradual introduction of departmental instruction, some choice of subjects under guidance, promotion by subjects, pre-vocational courses, and a social organization that calls forth initiative and develops the sense of personal responsibility for the welfare of the group (pp. 12-13).

A closer examination of the Seven Cardinal Principles reveals statements that seem "middle school" in nature; namely, "the pupil to explore his own aptitudes," and the call for "a social organization that calls forth initiative and develops the sense of personal responsibility for the welfare of the group." These statements may suggest that the problem with the junior high school was not in its intention but in its implementation.

While a separate junior high was advocated in the early 1900's, it was simply thought of as a part of the high school. Exactly when and where the birth of the junior high school occurred is subject to debate; nonetheless, the junior high movement was underway.

It is known to researchers, that the first junior high with grades 7-8-9 was introduced in Columbus, Ohio in 1909. This was also the first school district to use the term "junior high school." Bunker (1935) reports to the school board (Berkeley, California in 1910) that two new junior high schools or introductory high schools would be established to reduce the high dropout rate in the high schools and relieve overcrowded conditions (pp. 10-16). Bunker's report followed research studies conducted by Hall (1904) that drew to the attention of educators the profound changes adolescent underwent during puberty. According to Hall, puberty was the most formative period during the various stages of growth. Based in part on the research of Hall, educational literature began to focus on meeting the needs of early adolescents and appropriate training of this age group.

The junior high school movement was well rooted by 1920, approximately 400 junior high schools were in existence and the number was growing. That growth pattern continued until there were more than 7,000 junior high schools in the United States. Although the majority of junior high schools were composed of grades 7-8-9, there were a number of other combinations including 7-8, 8-9, and 7-10. Gaumnitz (1954) found that over 50 percent of the seventh and eighth graders in the United States attended junior high schools. Almost 75 percent of the school system in the country used junior high schools composed of grades 7-8-9 (p. 71).

The junior high school movement though well established began to deviate from its original purpose. The earliest studies on the functions of the junior high school revealed that educators assigned it a wide range of purposes. For example, Inglis (1918) recognized four major purposes of the junior high schools:

- Better coordination and articulation between elementary and secondary education;
- The adaptation of the school to the pupil's individual needs and differences;
- The recognition that not all pupils would remain in school until graduation, thus they should receive some vocational education; and
- The reorganization of "teaching materials and teaching methods" to reflect "the capacities and needs of the pupils with reference to their activities in life after the school" (pp. 293-295).

Briggs (1920), and early researchers on junior high schools, wrote extensively on the need to bridge the gap between elementary and secondary programs suggested the following:

- To continue insofar as it may seem wise and possible and in a gradually diminishing degree, common, integrating education;
- To ascertain and reasonable to satisfy pupils' important, immediate and assured future needs;
- To explore by means of material, in itself worthwhile, the interests, aptitude and capacities of pupils;

- To reveal to them by materials otherwise justifiable, the possibilities in the major fields of learning;
- To start each pupil on the career, which as a result of the exploratory courses, he and his parents and the school are convinced is most likely to be of profit to him and to the state (pp. 162-175).

Davis (1924) saw the junior high as "the country's great opportunity school." He believed that its major purposes lay in arousing the student's ambitions, inspiring them to reach full potential and guiding them toward "individual satisfaction and social well-beings" (p. 451). Research by Koos (1927) supported these reasons for establishing the junior high school he indicates, that over 73 percent of the school documents and 90 percent of the statements by educators that he reviewed mentioned retention of pupils as a major function of the junior high school. More than 63 percent of the documents and 85 percent of the educators referred to economy of time, while recognition of individual differences was mentioned in 53 percent of the documents and by 95 percent of the educational leaders (p. 506).

Research conducted by Howard and Stoumbis (1970) reviewed these arguments in support of the junior high school during the period of 1910 to 1930 and summarized these positions as follows:

- To reduce the number of dropouts;
- To offer educational and vocational guidance;
- To implement economy of time;
- To provide exploratory opportunities;
- To recognize individual differences in students;
- To allow for the unique needs and characteristics of early adolescents;
- To bridge the gap between elementary and secondary schools; and
- To establish an independent educational unit between elementary and high schools (p. 6).

Notice particularly the recognition given to "exploratory opportunities", "individual differences in students", and "allow for the unique needs and characteristics of early adolescents." Again, these statements seem quite "middle school" and further supports the notion that the problem with the junior high was not in its intention but in its implementation.

The junior high school was not without its critics and there were also attempts to reform the programs and the organization of the junior high school. Gruhn and Douglass (1956) conducted a study of the junior high school in the 1940's and developed six basic functions of the junior high school:

Function One--Integration: This is designed to help students use the skills, attitudes, and understanding previously acquired and integrate them into effective and wholesome behavior.

Function Two--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 vocational interests.

Function Three--Guidance: To help students make better decisions about vocational and educational activities and help students make satisfactory social, emotionally, and social adjustments toward mature personalities.

Function Four--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.

Function Five--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.

Function Six--Articulation: To provide for a gradual transition from preadolescent education to an educational program suited to the needs of adolescent girls and boys (pp. 31-32).

This final portion of the review will examine the deficiencies of the junior high school and lay the foundation for the emergence of the middle school as an alternative to the junior high school. Since the junior high school was originally seen as a downward extension of secondary education, the complete and total dominance of the traditional high school is not surprising. The American junior high school failed to achieve its own identity and recognition from the beginning. Lounsbury and Vars (1978) cites, the new educational unit was saddled with a label that was taken too literally, both in terms of the prestige accorded it and in terms of the educational practices employed in it. The very word junior in our culture carries something of a demeaning and subservient tone. Lounsbury and Vars further states, the lack of prestige was exacerbated by the attitudes people held concerning this new institution (p. 14).

Another major problem according to research, was the inability of the junior high movement to gain recognition from teacher training institutions and state departments of education. Very few college courses dealt with pre- or early adolescent behavior, most training prepared teacher for high schools not junior highs. 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 varsity athletics, proms, and marching bands tended to exert considerable pressures on junior high students. The junior high school was in reality a "junior" high school. The role of the Carnegie unit of credit assigned to grade nine 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 extended to grades eight and seven, respectively. Lounsbury and Vars (1978) suggests the ninth grade carried Carnegie unit credits applicable to high school graduation and thus the junior high school never really cut the high school apron strings. They further cited the new junior high school began operation with virtually no appropriate standards, regulations or policies to guide its proper development. State departments often required one set of reporting procedures for seventh and eighth graders and another for the ninth grade (p. 15).

Several other authorities have argued that the real motivations for the establishment of the junior high school, in addition to those stated above, were problems associated with overcrowded conditions in the elementary and high schools. Research by Lentz (1956) concludes, "it is apparent that in many cases it was established, not because of any strong and proven educational values, but as an expedient, usually to solve a housing problem, and in many cases because it was the thing to do in educational circles" (p. 523). In support of Lentz's premise, Lounsbury and Vars (1978) offers the following, "the difficulties experienced by the junior high school were further complicated by the

facilities in which it operated. Typically, it set up shop in the old high school buildings when the favored institution moved into the community's new pride - the modern senior high school building." Here, Lounsbury and Vars suggests, the junior high school contended with the very inadequacies that led to the building of a new high school (p. 15).

Alexander and Kealy (1969) agreed. "Unfortunately", they wrote, "the initial movement toward the junior high school was, in actuality, an attempt to alleviate the crowded conditions in existing school organizations ... The original goals of the junior high school were overlooked in the urgency of alleviating administrative problems" (pp. 151-163).

Thus, the junior high school, despite all of its adversities, handicaps, and what Lounsbury refers to as "negative press" in the last 20 to 30 years was a success story. Lounsbury and Vars (1978) concludes, "the junior high story is a success story, befitting the nation in which the story took place. Its failures - and there are many should not negate its successes" (p. 16).

HISTORICAL DEVELOPMENT OF THE AMERICAN MIDDLE SCHOOL

The emerging middle school movement throughout the United States today is, in part, an effort to rediscover, redefine, revamp, and reintroduce the basic pedagogical principles of adolescent learning upon which the junior high was originally established almost seventy years ago (Kohut, 1980, p. 5). Many reasons have been advanced for the existence of the middle school. Trauschke and Mooney (1974) identify the following as extremely important organizational considerations:

- A middle school takes full cognizance of the dynamic physical, social, and intellectual changes that are occurring in young people during the 10 to 14 year old span, and provides a program with the major purpose of creating a facilitative climate so that the transescent can understand himself and the changes that are occurring within and around him.
- Middle schools generally locate the ninth grade, with the awesome influence of the Carnegie unit, in senior high school settings. The rationale supporting this decision is usually that ninth graders are more like tenth, eleventh, and twelfth grade students than like seventh and eighth grade students.
- Middle schools provide opportunities for innovation. Such innovations might include team teaching, individualized instruction, flexible scheduling, and some form of continuous progress. Flexible rearrangements of time, space, material, and people give evidence to the value of the true middle school.
- Middle schools de-emphasize the sophisticated activities that are commonly found in the junior high school, such as marching bands, interscholastic athletics, and sophisticated dances. The program of activities which is provided permits each child to participate and is based on the personal development of the student rather than the enhancement of the school's prestige.
- Middle schools provide opportunities for exploratory study and enrichment activities earlier than do conventional elementary schools.
- Middle school instructional staffs combine the usual talents developed by teachers trained and oriented in the elementary school with the ability to specialize in a given field, so often a "characteristic" of a secondary teacher (pp. 9-12).

Dr. William Alexander in the early 1960's revived the term "middle school" used in some American private schools and long used in European schools. Alexander gave the term a new set of educational attributes. Proponents of the middle school support the rationale that

children 10 to 14 years old constitute a distinct stage of development involving similar physical, emotional/social, and mental characteristics. Eichhorn (1966) introduced the term of "transescence" in profiling the middle school student. "Transescence", according to Eichhorn, is the stage of development which begins prior to the onset of puberty and extends through the early stages of adolescence.

Research by Lounsbury and Vars (1978) indicates, the relatively rapid acceptance of the middle school as a valid educational approach was due to at least three major sources: (1) the dissatisfaction with the junior high school as it had evolved; (2) the Sputnik - induced obsession with academic mastery, particularly in mathematics and sciences; and (3) the recognition that young people were indeed maturing physically earlier (p. 16). Whereas, Alexander et al. (1968), referring to his original and continuing concept of the middle school states that the term "middle school concept" has been widely used to identify the beliefs, proposals and hopes underlying the movement. Alexander's concept of the middle school includes the following:

... a school providing a program planned for a range of older children, preadolescent, and early adolescent that builds upon the elementary school's program for earlier childhood and in turn is built upon by the high school's program for adolescence. Specifically, it focuses on the educational needs of what we have termed the "in-between-ager" (p. 191) ...

Research indicates that the New York City Public Board of Education (1965) was one of the earliest to respond to the middle school movement and to adopt a formal statement on grade reorganization for

the emerging middle schools. On April, 1965 the Board of Education adopted a statement of policy concerned with excellence for the schools of New York which said:

- There needs to be developed a new program of education in this city for the intermediate years of schooling. The exact grades of this new program are not as important as are its nature and content.
- One of the most important phases of the education in this period for a pupil will be his introduction to other children who are different from those with whom he associated in his elementary school.
- But at or about the fifth grade there must be added to this program an extra ingredient -- the sharing of learning experiences and life values with other children of different races, nationalities and economic status.
- The Board of Education, therefore, directs the Superintendent of Schools to produce within the coming school year an intermediate program for introduction in September, 1966.
- The basic design for an intermediate school was conceived in December, 1965.

From the onset of the middle school movement there appeared to be agreement about the middle level school's function. Alexander (1986) in his address to the National Council on Junior High/Middle School Administration Ind., stated the situation quite succinctly:

An examination of the writing of early leaders in the junior high school movement and of those in the later middle one reveals much unanimity as to what the respective middle level schools should be, regardless of grades included and whether called junior high, intermediate, middle, upper elementary school, or just "school in the middle" (p. 1).

Alexander's remarks would suggest, unlike the criticisms of the junior high school development, the new, emerging middle school movement answered several positive needs. Moss (1969) identified five arguments that presented more positive reasons for advocating a middle school. These positive rationales were:

- The earlier onset of puberty required that sixth graders be housed with seventh and eighth graders.
- Middle schools were not tied to college preparatory requirements and could, therefore, engage in greater curriculum experimentation focusing on the needs of the 11-14 age group.
- The development of middle school teacher certification would create a profession of teachers especially trained for dealing with preadolescent and early adolescents.
- Eventually, middle schools would offer a non-graded structure which would facilitate the transition from elementary to high school.
- Middle schools would emphasize guidance (p 283).

Moss' reference to the middle school structure, " would facilitate the transition from elementary to high school" has been the subject of considerable research. The transition from a junior high to a middle school organization requires research, planning, and commitment. Brazee (1987) describes the elements of planning a successful transition program:

- First, it is extremely important to establish purpose ...
- Second, school officials must determine responsibilities for various tasks that must be completed. Specific assignments may be assumed by the principal, while others may be delegated to teachers and counselors ...

- Third, transition strategies must be thoroughly planned ...
- Fourth, programs must be developed in accordance with established purposes of transition (pp. 57-58).

The importance of and the need for well planned transition activities have been clearly stated by the NASSP Council on Middle Level Education (1985):

One of the main responsibilities of the middle level school is to assure the smooth transition for students from elementary school to high school. Most school systems maintain three distinct, autonomous, and separate units that do little to coordinate their activities, programs, or curricula. The coordination that exists usually results from informal agreements and conversations between and among principals: it rarely stems from planned efforts to integrate the schools' programs across all grade levels.

To assure that the transition function is fulfilled: Schools could create a transition panel, composed of elementary, secondary, and middle level school teachers and parents. Panel members should discuss practices that interfere with smooth transition from one level to another, identify ways to facilitate this transition, and recommend to the schools or the Board of Education methods for fully integrating and articulating the K-12 programs in the district (p. 17).

Further support for well-planned transition programs can be found in the National Middle School Association's publication, This We Believe (1982).

Discontinuities in learning are especially evident when students transfer from one educational setting to another, such as from elementary to middle school or middle school to high school.

Therefore, curriculum, guidance programs, social activities, and other aspects of education should be carefully articulated K-12. Transescents, already highly sensitive and vulnerable because of the many changes they experiencing personally, are especially likely to be upset by a shift from one school to another and should receive special consideration at the transition points. Staff members of affected schools must plan together and keep in touch concerning student progress, and resist the temptation to blame students' previous teachers for any inadequacies (pp. 13-14).

Recent research by the Johns Hopkins University Center for Research on Elementary and Middle Schools (Epstein and MacIver, 1990), found that the three most common transition activities in middle level were: having elementary students visit the middle grade school; having the administrators of middle grade and elementary schools meet to discuss programs; and having middle-grade counselors meet with elementary counselors or staff members.

In their national survey, Epstein and MacIver found that schools surveyed provided 4.5 articulation activities for students moving into the middle level, and 3.9 activities for those entering high school. Similar activities were found to be most popular in the transition of students to the high school. Several purposes for transition articulation activities were described by Epstein and MacIver (1990). They include:

- To assure that children and families are better informed about the school programs requirements, procedures, opportunities, and about students' and parents' responsibilities at the new level of schooling.

- To assure that children are better prepared for the curricular and social demands at the new level of schooling.
- To assure that middle grades educators are better informed of the connections between their programs and those of the elementary schools that their children come from, and those of the high schools that their students will attend; and to help elementary and high school educators understand their connections with the middle grades.
- To assure that middle grades educators are better prepared to help students adjust to and succeed in a new school environment (p. 23).

During the 1980's educators and the research community also began to focus on the needs of early adolescents. The 1989 publication of Turning Points: Preparing American Youth for the 21st Century, by the Carnegie Council on Adolescent Development, provided specific recommendations for improving and transforming schools for this age group. Most of the recommendations are not new or revolutionary; many describe the characteristics of good middle schools that have been evolving since the late 1960's (Brazee, 1991).

Therefore, the goals of the middle school, as they have been outlined by various authors, reflected the belief that the middle school could cure many of the ills facing education in the decades the followed the 1960's. The aims of the new school, as defined by Alexander and his coauthors and later supported by middle school advocates Lounsbury, Vars, and Romano and Georgiady attempts to fulfill the function of humanizing the education of early adolescents. The Carnegie Corporation Task Force on Education of Young Adolescents

(1989) in its recommendation for transforming middle schools and its vision to improve the educational experiences of all middle grade students calls for middle schools that:

- Create small communities for learning where stable, close, mutually respectful relationships with adults and peers are considered fundamental for intellectual development and personal growth. The key elements of these communities are schools-within-schools or houses, students and teachers grouped together as teams, and small group advisories that ensure that every student is known well by at least one adult.
- Teach a core academic program that results in students who are literate, including in the sciences, and who know how to think critically, lead a healthy life, behave ethically, and assume the responsibilities of citizenship in a pluralistic society. Youth service to promote values for citizenship is an essential part of the core academic program.
- Ensure success for all students through eliminating of tracking by achievement level and promotion of cooperative learning, flexibility in arranging instructional time, and adequate resources (time, space, equipment, and materials) for teachers.
- Empower teachers and administrators to make decisions about the experiences of middle grade students through creative control by teachers over the instructional program linked to greater responsibilities for students' performance, governance committees that assist the principal in designing and coordinating school-wide programs, and autonomy and leadership within sub-schools or houses to create environments tailored to enhance the intellectual and emotional development of all youth.
- Staff middle grade schools with teachers who are expert at teaching young adolescents and who have been specially prepared for assignment to the middle grades.

- Improve academic performance through fostering the health and fitness of young adolescents, by providing a health coordinator in every middle grade school, access to health care and counseling services, and a health promoting school environment.
- Reengage families in the education of young adolescents by giving families meaningful roles in school governance, communicating with families about the school program and student's progress, and offering families opportunities to support the learning process at home and at the school.
- Connect school with communities, which together share responsibility for each middle grade student's success, through identifying service opportunities in the community, establishing partnerships and collaborations to ensure student's access to health and social services and using community resources to enrich the instructional program and opportunities for constructive after-school activities (pp. 9-10).

RESEARCH FINDINGS ON THE EFFECTS OF GRADE ORGANIZATION OR GRADE CONFIGURATION ON STUDENT'S ACADEMIC ACHIEVEMENT

The most appropriate grade configuration for preadolescent or early adolescents has been a subject of debate among researchers for quite sometime. The absence of agreement among researchers on an appropriate grade configuration is evidence by the lack of consistency in school organization across the country. Schools have been arranged in a variety of grade combinations to meet an equal variety of needs - some educational, others that appear expeditious. Neither in theory nor in practice have educators been able to agree on the best organization of the middle grades. In 1959 as educators served on the National Association of Secondary School Principals' Committee on Junior High School Education, they endorsed a seventh through ninth grade arrangement as the most appropriate combination for the middle years.

Other educators, such as William Alexander, favored either the fifth or sixth through eighth grade combination. Still other educators, such as James Conant, believed that it did not matter how schools were organized so long as they provided quality programs.

This debate raised a number of important issues that researchers have tried to answer. Central to the discussion, however, was an issue that research alone could not address, for it involved the responsibility of the schools and of society toward those young people undergoing the profound physical, emotional, and psychological changes associated with puberty.

The attempt to find the best or most appropriate grade configuration for preadolescents and early adolescents played a major role in the development of both the junior high school and the middle school. Both Samuel Popper, who defended junior high schools, and William Alexander, known as the father of the middle school movement, recognized grade configuration as one of the basic issues separating junior high schools from middle schools. According to Popper (1967) the "professional dialogue" on this issue focused on which grades are functionally appropriate for this unit of public school organization (p. 378). Research indicates that Alexander saw a broader debate, but one that began with grade placement. Alexander (1978) observed that conflicting opinions arise as to the years and grades, if any the specifics of the program; and the relation to the existing establishments in elementary, secondary and teacher education (pp. 3, 19-20).

A review of the literature and research, with respect to the effects of grade organization on students, indicates grade organization appears to have little or no influence on a student's academic achievement. Research by Donald Stout (1962) concluded "that organizational factors in and of themselves did not discriminate between the two groups of schools." He found that attitudes, services and interpersonal relations within the school community were more important in determining the achievement level of students.

Stout (1962) further stated, the central factor in the differences between the two groups of schools was observed to be the extent to which the staff had motivation and actively sought to make provisions for the needs of pupil. A study by Richard Wolfe (1972) supports the findings of Stout inasmuch as grade pattern has no significant effect on achievement. Wolfe concluded that in planning the grade arrangement patterns for the in-between years, decision makers may utilize any one of the designs which fit their local needs.

The professional dialogue centering on which grade organization is best, continues. Returning to and expanding the earlier notion advanced by Alexander (1978), he saw the debate in a broader sense. He states:

The emergent middle school is more than merely a reorganized junior high school. In fact, considerable impetus to a new type of middle school comes from dissatisfaction with the program, and organization of the upper years of the elementary school. Too, there is much support for a 4 year high school including the ninth grade. Thus the new middle school should be seen more as an effort to reorganize the total school ladder than just one of its divisions (p. 21).

A closer analysis of Alexander's research may suggest that "any or all" of the recommended grade patterns may not be the answer at all. Considering the wide divergence of achievement levels, physical development and social interests of pre or early adolescents, one may be inclined to suggest an investigation of a pattern of organization which is non-graded and geared to similarity of characteristics rather than a sequence of grades. Eichhorn (1965) furthers this concept by stating, "This study, in effect, suggests that the possible solution lies not in adjusted grade patterns, but rather in a functional school which takes into finite account the psychological principles of readiness and maturation, knowledge of child growth and development, and the cultural interaction of students" (p. 3).

Early research efforts to determine the most appropriate grade organization of grade configuration for pre or early adolescents were inconclusive. Wiles and Thompson (1975), after reviewing the substantial studies conducted between 1968 and 1974, concluded that "research on middle schools was of remarkable low quality. Most often, the research was conducted by someone who advocated some particular aspect of middle schooling, and used their findings to prove that they were correct" (p. 422).

Other reviews of early research tended to reach similar conclusions. Gerson (1968) believed that "it is doubtful if sufficient data will ever be available which demonstrates that one type of school organization is superior to another ... If only the grade organization is changed, he advised, there is little likelihood that the middle school will be an improvement over the junior high school" (p. 344). Howard

and Stoumbis (1970) after examining the limited amount of research on the topic, decided that there was "little basis for supporting any one organizational pattern over another" (p. 6). Gatewood's (1972) review of literature on the subject of differences between middle schools and junior high schools suggested that further inquiry into the subject might not be profitable (pp. 264-275). In related research, Gatewood and Dils (1975) determined that "a significant gap exists between the main tenets of the theoretical middle school concept proposed by leading middle school authorities and actual educational practices in most middle schools." Middle schools had "adopted the educational programs and practices of junior highs, thus not successfully achieving the middle school concept" (p. 26). Lipsitz (1977), supporting the findings of previous researchers, states that "school organization as to grade level does not matter" (p. 267).

Kohut (1980), in a National Education Association Publication, concludes from his review of the research that "the most appropriate grade organization cannot be determined from the available research" (p. 5). As late as 1983, Calhoun (1983), after reviewing all available comparative studies concluded:

... There is little difference in academic achievement between middle and junior high pupils;

... Grade organization has no apparent effect on the organizational climate of the schools;

... Maturation studies show that ninth graders are more like tenth graders and eighth graders are more like seventh graders;

... The quality of the school program is more important than the grade level organization;

... Junior highs and middle schools appear to be more alike than different, and from an empirical perspective they seem to differ, systematically, in name only (p. 135).

Though the preponderance of research on the most appropriate grade configuration for preadolescent or early adolescent would suggest that it appears to have little or no influence on a student's academic achievement, there are some research studies that conclude the contrary. Trauschke (1970), for example, tried to determine the best type of school in terms of achievement, attitudes, and self-concept by comparing one middle school to one junior high school and two elementary schools in Miami, Florida. Even though this study is limited to achievement, and other attributes of middle school/junior high are not a subject of this review, this research has some application. Trauschke's study on achievement tests and attitudinal measurement scales were administered to 50 students randomly selected from each school. The results of these several tests led Trauschke to formulate the following six conclusions:

- The "abrupt" introduction into the middle school of fifth and sixth grades from the self-contained classrooms of the elementary school appeared to have no negative effect on achievement, attitude toward school, or the student's self-concept.
- Since there was no significant differences for any of the comparisons at any grade level in favor of the junior high school and the elementary schools, middle school pupils were "at least equal" to their counterparts in elementary and junior high school in terms of achievement, self-concept, and attitude toward school.

- Seventh and eighth graders in the middle school "more often tend to equal or exceed students in grades seven and eight in junior high school than do pupils in grades five and six in the middle school when compared to students in grades five and six in the elementary schools." In addition, middle school students showed significant gains in all tested areas after one year in the new program.
- Seventh and eighth graders, after a minimum of two years in the middle school, achieved at higher levels than junior high schools pupils; the difference was significant in favor of the middle school on six out of eight comparisons. In addition, "there is no evidence ... that fifth or sixth grade pupils in the middle school do not equal the achievement of fifth and sixth grade students in the elementary schools."
- At each grade level, middle school students showed more favorable attitudes toward school, more favorable attitudes toward school, themselves, other students, and teachers. Out of the 30 comparisons made in these areas, 29 favored the middle school, including eight which were significant.
- The self-concept of middle school students was at least equal to the self-concept of the students in the conventional schools. In grade seven, there was a significant difference favoring the middle school in the self-concept of students (p. 86).

Following his research, Trauschke concluded that "the attitudes and self-concept of students are enhanced by the programs of the middle school." In addition to the conclusions reached by Trauschke, other researchers have reached similar conclusions, which may suggest that the middle school configuration may provide a better educational environment than the junior high school. Smith (1975) investigated the differences in academic achievement and self-concept produced by middle school instruction and traditional instruction at the junior high

school. Approximately one hundred students from each type of program participated in this Canton, Ohio study. Smith found that middle school instruction produced significantly higher scores in reading and science. In social studies and use of sources, Smith found a "strong tendency" in favor of the middle school approach, in other subjects, no significant differences occurred. Smith concluded, "based on these findings, it may be concluded that there was substantial difference in academic achievement between pre- and early adolescents who received middle school instruction and those who received conventional instruction." Further, according to Smith, "it would appear that students who received middle school instruction attained greater academic achievement than those who received conventional instruction" (p. 172).

A similar study was conducted by Brantley (1982), comparing students enrolled in a junior high school from 1973 to 1975 and students enrolled in middle schools from 1976 to 1981. Brantley's research examined math and reading achievement scores. The results indicated that math and reading achievement scores for middle school students were higher than those of the junior high. The debate, as to the most appropriate grade configuration for preadolescent or early adolescents continues. The aforementioned review of the literature and research would confirm the absence of agreement among researchers. Neither in theory nor in practice have educators been able to agree on the best organization of the middle grades. However, researchers have concluded and would tend to agree on the need for further investigation on this issue (p. 26).

Epstein (1990) in her review of the National Survey of Practices and Trends, conducted by the John Hopkins University Center for Research of Elementary and Middle, for the February issue of Phi Delta Kappa offers the following insights. "With the information available at this time, no one can say unequivocally that one particular grade span or program is 'best' for all middle-grade schools in the U.S." Epstein further indicates that according to this survey, there are a number of complexities that underlay middle-grade education and reform. They are:

- Most schools that contain grade 7 have not yet developed educational programs based on recommended practices for the middle grades.
- Some practices are more prominent in certain types of middle school than others.
- Regardless of grade span, good practices make stronger programs ... The yard work of developing excellent programs is not accomplished merely by changing grade spans or constructing smaller buildings, but by attending to practices that are responsive to the needs of early adolescents.
- There is much more to be learned. In order to provide useful information to educators who must make tough decisions about middle grade practices for the early adolescents who attend their schools, we need new data on how students' learning, attitudes, and behaviors are influenced by different middle-grade practices in schools of different grade spans (pp. 438-444).

MacIver (1990) an associate to Epstein in the Center for Research on Elementary and Middle Schools at Johns Hopkins University agrees. In his Phi Delta Kappa article, "Meeting the Needs of Young

Adolescents: Advisory Groups, Interdisciplinary Teaching Teams, and School Transition Programs," he refers to three clear conclusions:

- There are important benefits associated with establishing extensive and well-organized implementation of advisory groups, interdisciplinary teaching teams, and school transition programs.
- If a major goal is to see most schools adopt effective implementations of these practices, the movement to restructure education in the middle grades still has a long way to go.
- Additional data are needed to help us understand and improve education in the middle grades ... Only by collecting a great deal more information on the diversity of educational approaches and practices in schools for the middle grades and on young adolescents' academic achievement and attachment to school will we be able fully to document and understand the effects of different practices on the progress of students (pp. 458-464).

Therefore, it can be concluded, from the review of the literature and research on the most appropriate grade configuration for preadolescents or early adolescents that further research and investigation is needed. It has been well documented, from the early research of Alexander, Popper, Stout, Wolfe and others, through the latest research by Epstein, MacIver and others, that more information, research and data are needed to make informed decisions on middle level education. Alexander and McEwin (1989) best summarizes the situation when they write:

The major tasks of leadership in middle level education must focus on the persistent needs of early adolescents for health growth and development, for motivation toward and acquisition of essential skills of communication and learning, for exploration and development of worthwhile interests, and for an increasing store of basic knowledge (p. 8).

Continued discussion, research and evaluation are essential before, agreement among educators can be reached on the most appropriate grade level or grade configuration to serve this unique and distinct stage of development.

SUMMARY

The review of literature covered the historical development of the junior high and middle school and the research related to the effects of grade organization/configuration on students' academic achievement. The literature reviewed showed that early educators differed on not only the main purposes of secondary education for preadolescents and early adolescents but also on the school organization that best housed it. Some of the purposes given for the junior high schools included the following: student exploration into his own aptitudes and making choices into the kind of work to which to devote ones life; development of personal responsibility for the welfare of the group; coordination and articulation between elementary and secondary education; provision of vocational education especially for those pupils who would not remain until high school graduation; satisfaction of pupils important, immediate and assured future needs; recognition of individual differences in students in development of educational programs. Grade configuration of the junior high school in early 1900's included the following

variations: 7-8, 8-9, 7-10, and 7-9. It was noted that the first junior high with grades 7-8-9 was introduced in Columbus, Ohio in 1909. Since the junior high was originally seen as a downward extension of secondary education the complete dominance of the traditional high school is not surprising. The ultimate conclusion of the review of the American junior high school is that it failed to achieve its own identity and recognition from the beginning because of the dominance of the high school curriculum from seeking a solution to the space problems for students to offering junior high teacher training programs that mirrored high school teacher training programs.

The American middle school movement arose out of concerns in the 1960's that the junior high school had failed to meet all of its purposes. Especially the purposes of providing an opportunity for exploration of preadolescent and adolescent youth in the period between elementary and high school. Dr. William Alexander was presented as the father of this movement along with other educational proponents (i.e., Eichhorn, Moss, Lounsbury, Vars, Romano, and Georgiady) sought to define a set of well-planned transition activities between the elementary years to the start of high school education. The continuing aim of the middle school remains to fulfill the function of humanizing the education of early adolescents.

The review of research findings on the effect of grade organization/configuration on middle grade students' achievement shows that the most appropriate grade level organization cannot be determined from the available research. The research that currently exists appears to be flawed in terms of technical concerns and/or involves such few

students that the results seem of limited applicability. There does exist a few studies such as noted by Trauschke, Smith, and Brantley that suggest middle school students may out perform on achievement and/or self-concept instruments than traditional junior high school students.

The ultimate conclusion of the review of literature and research is that continued discussion, research, and evaluation are essential before agreement among educators can be reached on the most appropriate grade level or grade configuration to serve the pre- and early adolescent student.

CHAPTER 3: METHODOLOGY

This chapter provides a description of the methods and procedures used to determine if there was a difference in the Michigan Educational Assessment Program (MEAP) results among students in a traditional junior high grouping versus a middle school grouping. The chapter is divided into the following: population, sample selection, description of sample, hypotheses, design and instrumentation, data gathering procedures, data analysis procedures, and summary.

POPULATION

The population to be sampled were the twenty-seven Michigan public school districts that form the Middle Cities Educational Association (MCEA) during the 1985-86 school year. MCEA membership included the following districts: Albion, Ann Arbor, Battle Creek, Bay City, Beecher, Benton Harbor, Buena Vista, Flint, Grand Rapids, Highland Park, Jackson, Kalamazoo, Lansing, Marquette, Midland, Monroe, Muskegon, Muskegon Heights, Niles, Plymouth-Canton, Pontiac, Port Huron, Saginaw, Southfield, Traverse City, Willow Run, and Ypsilanti.

The MCEA had its beginnings in 1966 with a group of urban school districts which came together in order to share concerns and coordinate efforts to meet urban district needs. The forces that brought Middle Cities districts together were a commonality in serving poor, minority and special needs children and the recognition that the funding for

educational change required political action and cohesiveness. The informal Middle Cities group was instrumental in formulating the State's compensatory education program.

In 1973, MCEA was officially formed as a nonprofit corporation with a membership of thirteen districts. A formal affiliation was also affected at that time. During 1985-86, Middle Cities membership included 27 urban center school districts across Michigan which serve approximately 300,000 (18%) of the students in the state. Based at Michigan State University and in close proximity to the State Capitol, MCEA worked to create better understanding and support for the needs of central city school districts.

Middle Cities provided a number of services to its districts including: professional development training for school administrators and teachers, research and program development support, relevant statistical data and information dissemination, served as a liaison with the Legislature and state agencies, provided a forum for member district administrators through coordination of 15 special area task forces which met monthly, and sponsored conferences on current issues in education.

SAMPLE SELECTION

As part of the sample selection process the population of 27 MCEA school districts were stratified as being either predominantly a junior high school district or middle school district. A junior high school was defined as a school including grades seven, eight, and nine. A middle school was defined as a school that included grades six, seven, and eight.

The chart below gives the 1985-86 MCEA school districts that were junior high or middle school in their grade configurations using the above definition.

Junior High

Ann Arbor
Battle Creek
Benton Harbor
Grand Rapids
Jackson
Kalamazoo
Marquette
Midland
Monroe
Muskegon
Plymouth-Canton
Saginaw
Traverse City
Ypsilanti

Middle School

Albion
Bay City
Beecher
Buena Vista
Flint
Highland Park
Lansing
Muskegon Heights
Niles
Pontiac
Port Huron
Southfield
Willow Run

The Executive Director of MCEA was used as the expert to select a sample of four junior high school districts and four middle school districts to be the focus of this study. The MCEA expert employed the following criteria in selecting the two non-random samples:

- Similar number of schools from each set of four school districts,
- Comparable operating expenditures per pupil,
- Approximately equal average teacher salaries, and
- Likeness between the racial/ethnic composition of students generally between the two samples.

Applying the above criteria, the Executive Director selected the school districts listed below to be part of the sampled MCEA districts.

- Junior High School Districts

- Battle Creek
 - Jackson
 - Muskegon
 - Saginaw

- Middle School Districts

- Bay City
 - Flint
 - Lansing
 - Willow Run

DESCRIPTION OF SAMPLE

The Executive Director of MCEA selected four junior high school districts and four middle school districts as stated in the prior section. The two non-random sample groups, however, varied to some degree on the following criteria: number of schools, current operating expenditures per pupil, average teacher salaries, and racial/ethnic composition of student body. In this section, tabular data collected from MCEA (for the first three criteria presented above) and the Michigan Department of Education (for the final criterion) records will be reported to contrast the two samples.

Table 3.1 below presents the number of junior high/middle schools. The schools included had enrollments in excess of 20 students tested on the seventh grade MEAP for 1985-86 school year.

**TABLE 3.1. COUNT OF JUNIOR HIGH/MIDDLE SCHOOLS AND
AGGREGATE ENROLLMENT TAKING SEVENTH GRADE MEAP
FOR THE SELECTED JUNIOR HIGH AND MIDDLE
SCHOOL DISTRICTS, 1985-86 SCHOOL YEAR.**

District Type/ District	Number of Junior High/ Middle School*	Aggregate Seventh Grade Enrollment Taking 1985-86 MEAP
Junior High Districts		
Battle Creek	5	495
Jackson	2	519
Muskegon	3	426
Saginaw	5	1,057
Total	15	2,497
Middle School Districts		
Bay City	3	793
Flint	5	1,687
Lansing	4	1,241
Willow Run	1	212
Total	15	3,933

*Schools with more than twenty students tested on the seventh grade 1985-86 MEAP.

A review of Table 3.1 above indicates that the junior high district and the middle school district were represented by 15 schools each. The aggregate number of seventh graders taking the 1985-86 MEAP was with 2,497 and 3,933 being tested for junior high and middle school districts respectively. The criterion of a similar number of schools from each set of four school districts was met with 15 schools from each.

The issue of current operating expenditures (COE) per pupil for the sample districts is given in Table 3.2 below. COE per pupil dollar figures for school years 1982-83 through 1985-86 are presented for each district as well as an average for the four districts combined for each sample.

TABLE 3.2. CURRENT OPERATING EXPENDITURES (COE) PER PUPIL FOR SELECTED JUNIOR HIGH SCHOOL AND MIDDLE SCHOOL DISTRICTS, 1982-1986.

District Type	Current Operating Expenditures (COE) Per Pupil			
	1982-83	1983-84	1984-85	1985-86
Junior High Districts				
Battle Creek	\$2,896	\$3,071	\$3,337	\$3,627
Jackson	\$2,657	\$2,828	\$2,929	\$3,127
Muskegon	\$3,049	\$3,317	\$3,573	\$3,826
Saginaw	\$2,595	\$2,674	\$3,056	\$3,312
Average	\$2,799	\$2,972	\$3,224	\$3,473
Middle School Districts				
Bay City	\$2,328	\$2,441	\$2,683	\$2,769
Flint	\$3,003	\$3,103	\$3,328	\$3,636
Lansing	\$2,752	\$2,962	\$3,128	\$3,619
Willow Run	\$2,501	\$2,813	\$3,045	\$3,594
Average	\$2,646	\$2,830	\$3,046	\$3,404

A perusal of Table 3.2 shows that the COE per pupil was slightly greater for junior high districts ranging from \$2,799 to \$3,473 compared to middle school districts ranging from \$2,646 to \$3,404. Calculating the COE per pupil dollar advantage shows that junior high

districts are out spending middle school districts on average \$153, \$142, \$178, and \$68 for school years 1982-83, 1983-84, 1984-85, and 1985-86 respectively. Overall, current operating expenditures (COE) per pupil varied slightly but always with the advantage given to junior high districts.

The average teacher salaries for the selected districts are displayed in Table 3.3 below. Again, figures are given for school years 1982-83 through 1985-86. Average salaries for the four selected districts by type are also displayed.

TABLE 3.3. TEACHERS' AVERAGE SALARY FOR SELECTED JUNIOR HIGH AND MIDDLE SCHOOL DISTRICTS, 1982-1986.

District Type/ District	Average Teacher Salary			
	1982-83	1983-84	1984-85	1985-86
Junior High Districts				
Battle Creek	\$25,709	\$27,210	\$28,536	\$28,591
Jackson	\$29,503	\$29,052	\$30,355	\$31,417
Muskegon	\$25,043	\$26,001	\$27,483	\$29,426
Saginaw	\$26,205	\$29,869	\$29,343	\$30,341
Average	\$26,615	\$28,033	\$28,929	\$29,944
Middle School Districts				
Bay City	\$28,254	\$29,294	\$32,500	\$31,385
Flint	\$26,428	\$29,152	\$30,343	\$32,361
Lansing	\$27,099	\$27,171	\$29,368	\$31,030
Willow Run	\$25,954	\$25,655	\$28,587	\$31,753
Average	\$26,934	\$27,818	\$30,200	\$31,632

A review of the average teacher salary figure by district type shows that middle school districts paid more than junior high districts for three of the four years. Calculating the difference showed that middle school district teachers on average would have brought home \$319 (more), -\$215 (less), \$1,271 (more), and \$1,688 (more) for school years 1982-83, 1983-84, 1984-85, and 1985-86 respectively.

The racial/ethnic background of the seventh grade students for the 1985-86 school year is presented in Table 3.4.

**TABLE 3.4. NUMBER AND PERCENT OF JUNIOR/MIDDLE STUDENTS
IN THE SELECTED JUNIOR HIGH AND MIDDLE SCHOOL
DISTRICTS BY RACIAL/ETHNIC CATEGORY, 1985-1986.**

District Type/ District	Racial/Ethnic Category of Junior/Middle Students									
	Native Amer.		Black		Asian Amer.		Latino		White	
	#	%	#	%	#	%	#	%	#	%
Junior High Districts										
Battle Creek	15	0.7	636	30.2	14	0.7	47	2.2	1,395	66.2
Jackson	20	1.1	495	27.5	15	0.8	53	2.9	1,221	66.7
Muskegon	30	1.5	708	35.8	13	0.7	75	3.8	1,151	58.2
Saginaw	34	1.0	1,940	54.3	12	0.3	447	12.5	1,139	31.9
Total	99	1.0	3,779	39.9	54	0.6	622	6.6	4,906	51.9
Middle School Districts										
Bay City	50	2.5	46	2.3	9	0.4	130	6.4	1,796	88.4
Flint	76	1.4	3,565	65.6	21	0.4	122	2.2	1,654	30.4
Lansing	87	1.8	1,375	27.8	115	2.3	543	11.0	2,818	57.1
Willow Run	1	0.1	282	32.8	6	0.7	2	0.2	569	66.2
Total	214	1.6	5,268	39.7	151	1.1	797	6.1	6,837	51.5

A perusal of the racial/ethnic data presented in Table 3.4 above indicates that the same racial/ethnic group varied by 1.8% or less when the junior high and middle school totals were compared. Specifically, the junior high minus the middle school racial/ethnic group totals produced the following percentage differences, respectively: Native American at $1.0 - 1.6 = -0.6$, Black at $39.9 - 39.7 = 0.2$, Asian American at $0.6 - 1.1 = -0.5$, Latino at $6.6 - 6.1 = 0.5$, and White at $51.9 - 51.5 = 0.4$. These percentage differences show that the totals of the selected junior high and middle school districts varied little (0.2 for Blacks to 0.6 for Native Americans). In addition, the majority (White) to the minority (Native American + Black + Asian American + Latino) ratios were 51.9% to 48.1%, respectively for the total of the junior highs and 51.5% to 48.5% respectively for the total of the middle schools. Thus the ratio of the majority student population to the minority student population was also quite similar (varied by 0.4% between junior high and middle schools).

Overall, it appears that the samples selected by the expert were similar in terms of the following: number of schools represented at the seventh grade level, current operating expenditures per pupil, average teacher salary, and racial/ethnic background of the student body.

The next section deals with the hypotheses evaluated in the study.

HYPOTHESES

The primary focus of this study was to determine if there is a difference in academic achievement among students in a traditional junior high grouping as compared to students in a middle school

grouping. The following hypotheses were formulated to guide the analysis of data for this study.

First, a set of seventh grade and then a set of tenth grade hypotheses will be presented.

Hypotheses Regarding Seventh Grade Achievement

Hypotheses 1:

Null Hypothesis: There is no difference between the two groups (middle school and junior high) in the proportion of the members in each of the four MEAP mathematics achievement categories.

Alternate Hypothesis: A greater proportion of the middle school students are in higher MEAP mathematics achievement categories than is the case for those who are in junior high schools.

Hypotheses 2:

Null Hypothesis: There is no difference between the two groups (middle school and junior high) in the proportion of the members in each of the four MEAP reading achievement categories.

Alternate Hypothesis: A greater proportion of the middle school students are in higher MEAP reading achievement categories than is the case for those who are in junior high schools.

Hypotheses Regarding Tenth Grade Achievement

Hypothesis 3:

Null Hypothesis: There is no difference between the two groups (middle school and junior high) in the proportion of the members in each of the four MEAP mathematics achievement categories.

Alternate Hypothesis: A greater proportion of the students from the middle school are in higher MEAP mathematics achievement categories than is the case for those who are in junior high schools.

Hypothesis 4:

Null Hypothesis: There is no difference between the two groups (middle school and junior high) in the proportion of the members in each of the four MEAP reading achievement categories.

Alternate Hypothesis: A greater portion of the students from the middle school are in the higher MEAP reading achievement categories than is the case for those who are in junior high schools.

DESIGN AND INSTRUMENTATION

This study employed the causal-comparative method as presented by Borg and Gall (1971). Causal-comparative studies have been said to bridge the span between descriptive and experimental research when a comparable control group was used as in this research. This method has produced results that approach the precision of a well-designed experiment. The reason that the causal-comparative method was employed is that in education many times the relationships under study do not permit experimental manipulation (pp. 297-316).

The next subsection deals specifically in how the causal-comparative method was translated into the design of the study.

Design

The study employed four middle school MCEA districts as the treatment group compared to four junior high MCEA districts as the control group. The independent variable was the middle school experience. The dependent variable was the Michigan Educational Assessment Program (MEAP) results in reading and mathematics. Using Campbell and Stanley (1963) terminology, the design should be termed a "static-group comparison" with time series testing after approximately

half of the treatment and then after completion of the treatment (pp. 12-13). The figure below symbolically depicts the specifics of the "static-group comparison."

Figure 3.1. Static-Group Comparison.

Middle School	X	O ₁	X	O ₂

Junior High		O ₁		O ₂

X = Middle school treatment.
 O₁ = Seventh grade MEAP observation.
 O₂ = Tenth grade MEAP observation.

In Figure 3.1 the broken line represents the fact that no formal means of matching or random selection were used to certify that the middle school and junior high MCEA would have been equivalent had it not been for middle school experience (X). Earlier in this chapter tabular data were provided to show how the two groups compared on a number of factors.

The next section describes the instrumentation used in this study in greater detail.

Instrumentation

This section focuses on the Michigan Educational Assessment Program (MEAP). This standardized measurement instrument served as the measure of academic performance in the current study.

The specifics of MEAP will be dealt with in three areas. First, the historical background of the development of MEAP from 1969 to 1989 will be reviewed. Next, a test description of MEAP in the subject areas

of reading and mathematics will be offered. In addition, the technical merits of MEAP in terms of reliability and validity will be briefly discussed.

Background. The MEAP was a standardized test administered, yearly, to all Michigan regular education students in grades four, seven, and ten. This assessment program was responsible for measuring the extent to which all Michigan students have mastered specified basic skills. Since 1969, MEAP has provided information to the Governor, Legislature, State Board of Education, citizens, local school districts, teachers, parents, and students on the status and process of Michigan basic skills education. Students were tested on their basic knowledge of vocabulary, reading comprehension, English usage, and mathematics. The MEAP was the statewide testing program initiated by the State Board of education, supported by the Governor and funded by the legislature.

The history of the version of MEAP being used in this study was explained in the Michigan Educational Assessment Program Handbook (1985).

The first four years of the assessment program (1969-1973) used standardized norm-referenced tests designed to rank students from highest to lowest in each of four subject areas (vocabulary, reading comprehension, English usage, and arithmetic) ... In the Fall 1971, referent groups were formed to develop specific performance objectives in the basic skills areas. The groups were composed of local, state, and higher education curriculum specialists and teachers from throughout Michigan. Groups submitted draft objectives for statewide review by grade level commissions and the Elementary and Secondary Education Council ... When the essential performance objectives were developed in 1972, no empirical evidence on the objectives was available and Department

staff agreed that a periodic review and revision would be needed. Revision of the objectives was undertaken in 1976 with the assistance of the Michigan Council of Teachers of Mathematics (MCTM) and the Michigan Reading Association (MRA). As the sets of skills were reviewed, it became apparent that certain new areas of emphasis (for example, metric measurement) needed to be added and other areas (for example, the difference between inferential and literal comprehension) needed to be clarified. The revised objectives were adopted by the State Board of Education in 1980. The revised sets of objectives represent an extension of the original set based on the experience of using them in the Michigan Educational Assessment Program. The need for revised tests was the direct result of the adoption of the revised objectives (p. 1).

The revised 1980 MEAP objectives in reading and mathematics serve as the basis for the 1985-86 seventh grade and the 1988-89 tenth grade MEAP administrations.

Test Description. The MEAP assessment tests used in this study were objective referenced sets of items measuring essential performance objectives in the subject areas of reading and mathematics for grades seventh and ten. Each objective was measured by a set of three multiple choice items. The item's stimulus was a question or problem to which a student's response is a choice of multiple presented options, with one being the best answer. Objective attainment was defined as answering correctly two or more of the three items measuring each objective. The tests were untimed thus allowing students to work at their own pace. The school districts involved administered the tests in the fall of the school year from approximately mid-September through mid-October as specified by state guidelines for the 1985-86 and 1988-89 school years.

Table 3.5 below shows the number of objectives and items used in reading and mathematics for grades 7 and 10 in the cognitive skills/core test reported in the proportions data.

**TABLE 3.5. NUMBER OF OBJECTIVES AND ITEMS USED IN THE
READING AND MATHEMATICS MICHIGAN EDUCATIONAL
ASSESSMENT PROGRAM (MEAP) FOR GRADES
SEVEN AND TEN.**

Subject Area Test	Grade	Number of Objectives	Number of Test Items
Reading Cognitive Skills Test	7 10	23 24	69 72
Mathematics Core Test	7 10	28 28	84 84

The objectives enumerated above in Table 3.5 are further described in Appendix A by skill areas.

Local educators received various reports from the MEAP. These reports were returned to superintendents, to principals, and to teachers. The following reports were provided for grades seven and ten: individual student report; classroom listing report; school summary report (includes proportions data); district summary report (includes proportions data); test item analysis - classroom, school, district; parent pamphlet, feeder school report (optional) - grade seven and grade ten; and research code report (optional).

This study used the seventh grade school summary report with proportions data for 1985-86 and the tenth grade 1988-89 feeder school report. The feeder school reports were especially useful for this

research at the tenth grade level because they reported results of only past junior high/middle students as they were fed into the high school. Thus the feeder school results screened out any new entries between seventh and tenth grades.

The MEAP proportions information was the specific data used in this research. The proportions section presented the percentage of pupils in each of four categories of achievement for the school. Category 4 (highest) contained the percentage of students who attained approximately 3/4 or more of the objectives; Category 3 contained the percentage of students who attained roughly 1/2 to 3/4 of the objectives; Category 2 contained the percentage of students who attained about 1/4 to 1/2 of the objectives; while Category 1 (lowest) contained the percentage of students who attained approximately 1/4 or less of the objectives. Table 3.6 shows the range of objectives in each category of achievement.

TABLE 3.6. RANGE OF MICHIGAN EDUCATIONAL ASSESSMENT PROGRAM (MEAP) OBJECTIVE ATTAINMENTS IN READING AND MATHEMATICS FOR EACH CATEGORY OF ACHIEVEMENT, 1985-1989.

Category of Achievement	Number of Objectives		
	Reading Grade 7	Reading Grade 10	Mathematics Grades 7 and 10
4 (Highest)	17-23	18-24	22-28
3	12-16	12-17	15-21
2	6-11	6-11	8-14
1 (Lowest)	0- 5	0- 5	0- 7

The final subsection briefly reviews the technical characteristics of the MEAP employed in this study.

Technical Characteristics

As explained above the MEAP has changed from a standardized norm-referenced (NRT) achievement test (1969-1973) to a standardized objective referenced achievement test (1973-1989). The objective referenced test (ORT) is keyed to a set of specific educational objectives (usually reflecting actual curriculum emphasis) such that information can be gathered about certain tasks (as described by the educational objectives) a student can and cannot do.

ORT procedures thus represent a recent alternative to traditional norm-referenced testing procedures. ORT systems do possess positive characteristics as well as also posing problematic implications for test construction. These implications identified by Popham and Husek (1969) and reported by Shakrarni (1973) include the following areas:

1. Variability. Many writers have noted that variability is not essential to quality criterion-referenced testing. In fact, variability is irrelevant in that test scores derive meaning from the relationship between items and their criterion rather than from a comparison with other scores.
2. Reliability. Reliability is a technical quality important to criterion-referenced testing. Its estimation, however, especially with respect to internal consistency, is difficult to identify since classical reliability procedures rely on variance.

3. Validity. Validity is also an important technical quality. Many validation procedures involve the derivation of correlations which in turn are based on variance. To many writers, such procedures based on variance are of questionable or restricted use for ORT's. In general, ORT validity must depend upon the correspondence of the test items with the objectives to which the test is referenced (pp. 26-29).

Thus the technical standards of the ORT appears to be much more subjective than NRT which bases its psychometric theory on the variability of the normal curve and how well the test explains it. The precise researched details of validity and reliability can be found in Michigan Educational Assessment Program: Technical Report, Volume I (1980) and Michigan Educational Assessment Program: Technical Report, Volume II (1981). Whatever technical details on MEAP were given, they were sufficient that educators across the State of Michigan continued to use this test to measure academic outcomes of students in reading and mathematics in grades seven and ten over the time covered in this study.

DATA GATHERING PROCEDURES

The MEAP proportion results for seventh graders (1985-86) and tenth graders feeder results for the former seventh graders (1988-89) were obtained from MCEA records. MCEA on a yearly basis requested the MEAP proportion data for its own records from the Michigan Department of Education. The MEAP proportions data were by building as well as by school district.

The next selection deals with how these data were analyzed.

DATA ANALYSIS PROCEDURES

The chi-square (χ^2) test was the statistical procedure used to test the four study hypotheses. The non-parametric chi-square test was chosen because it is the only available statistical test to evaluate the particular set of hypotheses dealing with a nominal scale of measurement (Siegel, 1956, pp. 30-34).

Specifically, each hypothesis was tested in the following manner: The total number of students per school was equally weighted by setting the count at 100 (99.8 to 100.2 allowing for rounding in the State reported figures). The observed equally weighted frequencies by school were added for each of the four categories of achievement across all schools for the middle school and junior high samples. These summed observed frequencies were displayed in a contingency table constructed of achievement categories (1, 2, 3, and 4) across the top crossed by middle school and junior high down the side for the MEAP data relating to each of the four hypotheses. Figure 3.2 below presents the contingency table layout used for each item.

**Figure 3.2. Chi-Square Contingency Table Layout
Used for Each Hypothesis.**

School Type	Category of Achievement				Total
	1	2	3	4	
Middle School					
Junior High					
TOTAL					

Chi-square values were calculated on the basis of expected frequencies determined from marginal observed totals from each contingency table. The general chi-square formula given below was employed in the calculation of the chi-square related to each of the four null hypotheses:

$$\chi^2 = \sum_{i=1}^r \sum_{j=1}^k \frac{(O_{ij} - E_{ij})^2}{E_{ij}} \quad \text{with df} = (r-1)(k-1)$$

where O_{ij} = equally weighted cases categorized in the i th row of the j th column

E_{ij} = number of cases expected under H_0 to be categorized in i th row of the j th column

$\sum_{i=1}^r \sum_{j=1}^k$ = directs one to sum over all (r) rows and all (k) columns, i.e., to sum over all cells

r = the number of rows in contingency table

k = the number of columns in contingency table

To find the expected frequency for each cell (E_{ij}), multiply the two marginal totals common to a particular cell, and then divide this product by the total number of cases (N).

The .05 confidence level was selected as the criterion for significance. To determine the significance of the χ^2 calculated from the above formula with $df = (r-1)(k-1) = 3$ the tabled critical values of chi-square were consulted (Seigel, 1956, p. 249).

SUMMARY

This chapter contained an explanation of the research design and methods followed in conducting the study. The population sampled, procedures used to select the samples, and the resulting samples were described in some detail, as well as, the study's design. The four study hypotheses were restated in the null and alternate hypothesis format. The measurement instrument used to collect the data for the study was discussed in terms of its historical/developmental background, a description of the particular form of the instrument used in this study, and a brief overview of the technical merits of the instrument. The data gathering and analysis techniques were also discussed. Chapter 4 contains the results of the analyses of data collected for this study.

CHAPTER 4: ANALYSIS OF RESULTS

In this chapter, the results of the causal comparative analysis of the middle school versus the traditional junior high grouping are presented and discussed. Specifically, the Michigan Educational Assessment Program (MEAP) results for 1985-86 (seventh grade) and 1988-89 (tenth grade) students in mathematics and reading are contrasted for the four middle school and four junior high districts sampled. The chapter is divided into the following: independent variables, dependent variables, hypotheses related to seventh grade, hypotheses related to tenth grade, summary of findings, and overview.

INDEPENDENT VARIABLES

Subjects in this study were students who were MEAP tested in 1985-86 as seventh graders and retested on MEAP in 1988-89 as tenth graders. The two groups of students were: 1) middle school group and 2) junior high group. Since the unit of analysis was the school, student results were equally weighted by setting the size of each school at approximately 100 (fractional units were allowed to the tenth place and rounding caused the actual size to vary from 99.8 to 100.2). For the seventh grade results there were 15 middle schools and 15 junior high schools represented in the sample. At the tenth grade level there were 13 buildings representing the middle school graduates and eight buildings representing the junior high graduates.

DEPENDENT VARIABLES

Academic achievement in mathematics and reading was measured by the MEAP. The objective attainment data was reported in terms of category of achievement. Category 4 (highest) contained the percentage of students who attained approximately $\frac{3}{4}$ or more of the objectives; Category 3 contained the percentage of students who attained roughly $\frac{1}{2}$ to $\frac{3}{4}$ of the objectives; Category 2 contained the percentage of students who attained about $\frac{1}{4}$ to $\frac{1}{2}$ of the objectives; while Category 1 (lowest) contained the percentage of students who attained approximately $\frac{1}{4}$ or less of the objectives. These data were obtained from the Michigan Department of Education by the way of the Middle Cities Education Association (MCEA) that makes a yearly request from the department to receive the data.

HYPOTHESES

The study addressed the question of the most appropriate organizational structure in which grade seven students were most successful. The study compared the 1985-86 MEAP results of seventh grade students in MCEA traditional junior high schools with the results of seventh grade students in MCEA middle schools in the State of Michigan. The same comparison using 1988-89 MEAP feeder school results was conducted with the same MCEA students when they were in grade ten. Two subject area hypotheses were developed to compare the two groups of students. Two hypotheses each were specified for grades seven and ten. Chi-square was used as the test of

significance. What follows is the seventh grade hypotheses and statistical results and then the tenth grade hypotheses and statistical results.

Hypotheses Regarding Seventh Grade Achievement

The results for mathematics and then reading will be presented for seventh graders in this study.

Hypothesis 1

- H_0 : There is no difference between the two groups (middle school and junior high) in the proportion of members in each of the four MEAP mathematics achievement categories.
- H_1 : A greater proportion of the middle school students are in higher MEAP mathematics achievement categories than is the case for those who are in junior high school.

The chi-square test was used to compare the frequency of middle school and junior high students. Prior to calculation of the statistic the observed and expected counts had to be tabulated and calculated. (See Appendix B for observed values tabulated by school for mathematics.) Figure 4.1 presents the observed and expected frequencies plus marginal totals related to hypothesis one.

Figure 4.1. Observed and (Expected) Frequencies for the Contingency Table Related to Hypothesis One-- Seventh Grade Mathematics.

School Type	Category of Achievement				Total
	1	2	3	4	
Middle School	18.8 (19.65)	88.1 (108.75)	403.3 (414.84)	989.4 (956.37)	1,499.6
Junior High	20.5 (19.65)	129.4 (108.75)	426.4 (414.86)	923.4 (956.43)	1,494.7
TOTAL	39.3	217.5	829.7	1,912.8	2,999.3

Table 4.1 below displays the result from the use of the frequencies in Figure 4.1 in the chi-square formula to determine the status of hypothesis one.

TABLE 4.1. CHI-SQUARE TEST RESULT FOR HYPOTHESIS ONE.

Hypothesis	Chi-Square	Degrees of Freedom	Probability
1. Grade 7 Mathematics	10.52*	3	.015

*Significant finding $p \leq .05$.

Table 4.1 above shows that the calculated chi-square of 10.52 is significant beyond the .05 level. Therefore, the null hypothesis of no differences in mathematics for grade seven at $\alpha = .05$ can be rejected.

Hypothesis 2

- H_0 : There is no difference between the two groups (middle school and junior high) in the proportion of members in each of the four MEAP reading achievement categories.
- H_2 : A greater proportion of the middle school students are in higher MEAP reading achievement categories than is the case for those are in junior high schools.

Again the chi-square test was used to test the hypothesis. Prior to the calculation of the statistic the observed and expected counts had to be tabulated and calculated. (See Appendix B for the observed values tabulated by school for reading.) Figure 4.2 displays the observed and expected frequencies plus marginal totals related to hypothesis two.

Figure 4.2. Observed and (Expected) Frequencies for the Contingency Table Related to Hypothesis Two-- Seventh Grade Reading.

School Type	Category of Achievement				Total
	1	2	3	4	
Middle School	19.4 (26.90)	95.8 (117.66)	195.7 (245.72)	1,189.4 (1,110.2)	1,500.3
Junior High	34.4 (26.90)	139.5 (117.64)	295.7 (245.68)	1,030.5 (1,109.88)	1,500.1
TOTAL	53.8	235.3	491.4	2,219.9	3,000.4

Table 4.2 presents the resulting statistic from the use of the frequencies in Figure 4.2 in the chi-square formula for hypothesis two.

TABLE 4.2. CHI-SQUARE TEST RESULT FOR HYPOTHESIS TWO.

Hypothesis	Chi-Square	Degrees of Freedom	Probability
2. Grade 7 Reading	44.03*	3	<.001

*Significant finding $p \leq .05$.

A perusal of the data in Table 4.2 above indicates that the calculated chi-square of 44.03 is significant well beyond the .05 level. Therefore, the null hypothesis of no difference in reading for grade seven at $\alpha = .05$ can be rejected.

Hypotheses Regarding Tenth Grade Achievement

The results to evaluate mathematics and then reading achievement levels will be given below for tenth graders in this study.

Hypothesis 3

- H_0 : There is no difference between the two groups (middle school and junior high) in the proportion of members in each of the four MEAP mathematics achievement categories.
- H_3 : A greater proportion of the students from the middle school are in higher MEAP mathematics achievement categories than is the case for those who are in junior high schools.

As at the seventh grade level the chi-square test was used to test the tenth grade hypotheses. Prior to the calculation of the statistic the

observed and expected counts had to be tabulated and calculated. (See Appendix B for the observed values tabulated by school for mathematics.) Figure 4.3 presents the observed and expected frequencies plus marginal totals related to hypothesis three.

Figure 4.3. Observed and (Expected) Frequencies for the Contingency Table Related to Hypothesis Three--Tenth Grade Mathematics.

School Type	Category of Achievement				Total
	1	2	3	4	
Middle School	49.1 (52.38)	142.2 (155.64)	304.0 (328.49)	804.8 (763.59)	1,300.1
Junior High	35.5 (32.22)	109.2 (95.76)	226.6 (202.11)	428.6 (469.81)	799.9
TOTAL	84.6	251.4	530.6	1,233.4	2,100.0

Table 4.3 below depicts the result from the use of the numbers in Figure 4.3 in the chi-square formula to evaluate the status of hypothesis three.

TABLE 4.3. CHI-SQUARE TEST RESULT FOR HYPOTHESIS THREE.

Hypothesis	Chi-Square	Degrees of Freedom	Probability
3. Grade 10 Mathematics	14.17*	3	.005

*Significant finding $p \leq .05$.

A review of Table 4.3 indicates that the calculated chi-square of 14.17 is significant beyond the .05 level. Therefore, the null hypothesis of no difference in tenth grade mathematics at $\alpha = .05$ can be rejected.

Hypothesis 4

- H_0 : There is no difference between the two groups (middle school and junior high) in the proportion of members in each of the four MEAP reading achievement categories.
- H_4 : A greater proportion of the students from the middle school are in higher MEAP reading achievement categories than is the case for those who are in junior high schools.

Again the chi-square test was used to compare the frequency of middle and junior high school students. Prior to calculation of the statistic of interest the observed and expected counts had to be tabulated and calculated. (See Appendix B for the observed values tabulated by school for reading.) Figure 4.4 presents the observed and expected frequencies plus marginal totals related to hypothesis four.

Figure 4.4. Observed and (Expected) Frequencies for the Contingency Table Related to Hypothesis Four--Tenth Grade Reading.

School Type	Category of Achievement				Total
	1	2	3	4	
Middle School	31.7 (39.86)	98.3 (126.54)	203.7 (205.78)	966.1 (927.61)	1,299.8
Junior High	32.7 (24.54)	106.1 (77.86)	128.7 (126.62)	532.3 (570.79)	799.8
TOTAL	64.4	204.4	332.4	1,498.4	2,099.6

Table 4.4 below depicts the result from the use of the frequencies in Figure 4.4 in the chi-square formula to evaluate hypothesis four related to tenth grade reading.

TABLE 4.4. CHI-SQUARE TEST RESULT FOR HYPOTHESIS FOUR.

Hypothesis	Chi-Square	Degrees of Freedom	Probability
4. Grade 10 Reading	25.17*	3	<.001

*Significant finding $p \leq .05$.

Table above shows that the calculated chi-square of 25.17 is significant beyond the .05 level. Therefore, the null hypothesis of no difference in tenth grade reading at $\alpha = .05$ can be rejected. These results lend support to the alternate hypotheses that middle schools show a greater portion of their students in the higher MEAP achievement categories than the junior schools with their students.

SUMMARY OF FINDINGS

Using a contingency table of observed and expected frequencies, a chi-square test was used to evaluate the status of the four hypotheses. A summary of these results is given in Table 4.5 below.

TABLE 4.5. SUMMARY OF CHI-SQUARE RESULTS RELATED TO FOUR HYPOTHESES CONTRASTING MIDDLE AND JUNIOR HIGH SCHOOL MEAP CATEGORIES OF ACHIEVEMENT.

Hypothesis	Chi-Square	Degrees of Freedom	Probability
1. Grade 7 Mathematics	10.52*	3	.015
2. Grade 7 Reading	44.03*	3	<.001
3. Grade 10 Mathematics	14.17*	3	.005
4. Grade 10 Reading	25.17*	3	<.001

*Significant finding $p \leq .05$.

A study of the summary results in Table 4.5 shows that all four chi-squares are significant beyond the .05 level. Therefore, the null hypotheses of no difference at $\alpha = .05$ can be rejected in all four cases.

These results lend support to the alternate hypotheses that a greater proportion of the middle school than junior high school students are in the higher MEAP achievement categories. A study of Figures 4.1-4.4 consistently show that in Category 4 (highest achievement category) that more middle school students are observed than expected in this category and the opposite is true for the junior high students.

Comparing middle school students observed versus expected for Category 4 among middle school participants, the reading achievement results show stronger gains than mathematics.

OVERVIEW

Chapter 1 provided an introduction to the research problem and defined the operational terms. Information concerning the purpose of the study, conceptual framework, and limitations were included. Four research hypotheses were stated. Chapter 2 contained a review of literature. Chapter 3 contained a restatement of the research hypotheses in a null and alternate format and a discussion of the design, procedures, and methodology used in this study. Chapter 4 contained the findings. This study concludes in Chapter 5 with discussions of the findings and their implications for future practice and research.

CHAPTER 5: REVIEW OF THE STUDY, SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

In this chapter, the entire study to determine if there was a difference in the Michigan Educational Assessment Program (MEAP) results among students in a traditional junior versus a middle school grouping is summarized, including the results. In addition, this chapter contain discussion concerning the summary of past research and recommendations.

REVIEW OF THE STUDY

The purpose of this study was to compare MEAP results between traditional junior high and middle schools and to determine the organizational structure in which seventh grade students are most successful and continue to show their success in grade ten. Grade configurations distinguished the junior high from the middle school. A junior high school was defined as a school that was designated as one between elementary and high school, and includes grades seven, eight, and nine. Whereas, a middle school was defined as a school that was designated as one between elementary and high school, and included grades six, seven, and eight, or grades five, six, seven, and eight.

The population sampled was the twenty-seven Michigan urban public school districts that form the Middle Cities Educational Association (MCEA) during the 1985-86 school year. The Executive Director of MCEA was enlisted as an expert to select a sample of four

junior high MCEA districts and four middle school MCEA districts. Comparisons of the two sampled groups showed them to be the same or somewhat similar in the following areas: the number of schools represented at the seventh grade level, current operating expenditures per pupil, average teacher salaries, and racial/ethnic composition of the student body.

The study employed the causal comparative method with the junior high sample as a control/comparison group for the middle school sample. The middle school experience in grades six through eight or five through eight served as the independent variable.

The MEAP results in reading and mathematics in 1985-86 (seventh grade) and 1988-89 (tenth grade) served as the dependent variable. The data was reported out in categories of achievement ranging from one (lowest) to four (highest). The nominal form of measurement required the use of a non-parametric statistic to test the four research hypotheses.

The chi-square test using a two by four contingency table matrix for the calculation of expected frequencies from the observed frequencies was employed. The observed category of achievement results by school were equal weighted by assigning each a total frequency count of 100. All four hypotheses recorded significant findings (alpha level .05). These significant findings in reading and mathematics at grades seven and ten in favor of the middle school grouping over the traditional junior high counters the findings of other past researchers that found no significant difference in mathematics and/or reading.

SUMMARY

The review of literature covered the historical development of the junior high and middle school and the research related to the effects of grade organization/configuration on students' academic achievement. The literature reviewed showed that early educators differed on not only the main purposes of secondary education for preadolescents and early adolescents but also on the school organization that best housed it. Some of the purposes given for the junior high schools included the following: student exploration into his own aptitudes and making choices into the kind of work to which to devote ones life; development of personal responsibility for the welfare of the group; coordination and articulation between elementary and secondary education; provision of vocational education especially for those pupils who would not remain until high school graduation; satisfaction of pupils important, immediate and assured future needs; recognition of individual differences in students in development of educational programs. Grade configuration of the junior high school in early 1900's included the following variations: 7-8, 8-9, 7-10, and 7-9. It was noted that the first junior high with grades 7-8-9 was introduced in Columbus, Ohio in 1909. Since the junior high was originally seen as a downward extension of secondary education the complete dominance of the traditional high school is not surprising. The ultimate conclusion of the review of the American junior high school is that it failed to achieve its own identity and recognition from the beginning because of the dominance of the high school curriculum from seeking a solution to the space problems

for students to offering junior high teacher training programs that mirrored high school teacher training programs.

The American middle school movement arose out of concerns in the 1960's that the junior high school had failed to meet all of its purposes. Especially the purposes of providing an opportunity for exploration of preadolescent and adolescent youth in the period between elementary and high school. Dr. William Alexander was presented as the father of this movement along with other educational proponents (i.e., Eichhorn, Moss, Lounsbury, Vars, Romano, and Geogiady) sought to define a set of well-planned transition activities between the elementary years to the start of high school education. The continuing aim of the middle school remains to fulfill the function of humanizing the education of early adolescents.

The review of research findings on the effect of grade organization/configuration on middle grade students' achievement shows that the most appropriate grade level organization cannot be determined from the available research. The research that currently exists appears to be flawed in terms of technical concerns and/or involves such few students that the results seem of limited applicability. There does exist a few studies such as noted by Trauschke, Smith, and Brantley that suggest middle school students may out perform on achievement and/or self-concept instruments than traditional junior high school students.

The ultimate conclusion of the review of literature and research is that continued discussion, research, and evaluation are essential before agreement among educators can be reached on the most appropriate grade level or grade configuration to serve the pre- and early adolescent student.

CONCLUSIONS

The specific purpose of this study was to determine the organizational structure in which seventh grade students are most successful and continue to show their success in grade ten. The following are the major findings of this research.

1. A greater proportion of the seventh grade middle school students are in higher MEAP mathematics achievement categories than is the case for those who are in junior high schools.
2. A greater proportion of the seventh grade middle school students are in higher MEAP reading achievement categories than is the case for those who are in junior high schools.
3. A greater proportion of the tenth grade students from the middle schools are in higher MEAP mathematics categories than is the case for those junior high schools.
4. A greater proportion of the tenth grade students from the middle schools are in higher MEAP reading categories than is the case for those from junior high schools.

All four of the null hypotheses regarding academic achievement, as evidence by the MEAP results in reading and mathematics in 1985-86 (seventh grade) and 1988-89 (tenth grade), were rejected as a result of the statistical analyses. Significant differences were found at the .05 alpha level, in favor of the alternative hypotheses.

Discussion

The research on grade organization centered on the most appropriate structure in which seventh grade students are most successful and can achieve optimum academic results. The review of

previous studies when comparing the traditional junior high school with the middle school suggests that the establishment of a middle school appeared to have little negative effect on student achievement. Researchers who examined the middle school and junior high school to determine which was best for students in terms of academic achievement found little significant differences between the two. However, some studies of schools indicated that the middle school contributed to higher achievement, the conclusions presented above support that research. Early researchers found that middle schools and junior high schools were more alike than different in regards to curriculum, organizational structure, instructional practices, staffing patterns and co-curricular activities. There was some indication that middle schools, more than junior highs, used differentiated staffing, block and flexible scheduling, individualized instruction, team teaching and teacher-advisor program. Based on these findings, it can be concluded that the middle school organization of grades 6-7-8 is most likely to provide the key characteristics or program features commonly advocated as most appropriate to the needs of early adolescent students. Middle schools are much more likely to use a teacher-advisor program, provide transition and articulation activities, employ interdisciplinary teaching and block schedules, and furnish staff development activities that extend the range of teaching strategies appropriate to their students.

The major findings of this research supports the positive reasons for establishing middle schools:

- A grade pattern beginning with the sixth grade and ending with the eighth grade;

- A willing attitude on the part of the staff toward instructional experimentation, team teaching and utilization of multi-media teaching techniques;
- An emphasis on individual instruction and guidance for each student;
- A focus on the education of the whole child; and
- A program to help ease the transition between childhood and adolescence.

These findings support and advance the notion by previous researchers that teachers in middle schools tended to perform better and have a more positive attitude toward teaching and were more humanistic toward students. The conclusions further support the idea advanced by researchers that middle schools foster an improved learning environment where student and teacher tend to have positive attitudes.

The major findings of this study gives additional support to the research and studies measuring the homogeneity of pupils within various grade combinations that found the grade couplets of sixth and seventh graders and ninth and tenth graders were best for grouping students of similar maturation levels. These findings further confirm studies associated with the level of maturity of ninth graders, which indicates that ninth grade students more closely resemble tenth graders than eighth graders and belong in a 9-12 school configuration.

The ultimate conclusion, supported by the major findings of this research sustains the fundamental rationale for schooling at the middle

school level, which is, to foster healthy personal and academic growth and development of students during their young adolescent years.

RECOMMENDATIONS

The findings and conclusions of this study lead into a number of recommendations aimed at educational practice and other recommendations focused on avenues of further research. Thus the next two subsections deal with these issues.

Recommendations for Practice

The significant findings of this study and conclusions of other studies reviewed naturally lead into recommendations for those who are responsible for the education of preadolescents and early adolescents.

1. Middle school grade configurations (grades 5-8 or 6-8) should be sought as opposed to the current junior high grade configurations in MCEA districts. This should be especially undertaken by MCEA districts experiencing low levels of achievement on the MEAP. However, adequate inservice training of staff and the community about the nature and practices of middle school is indicated by the research reviewed.
2. Middle school classrooms should be staffed with teachers who have a strong educational preparation in preadolescents and early adolescents.
3. Educators contemplating moving from a junior high to middle school organizational configuration must seek to educate the community to the advantages of the middle school grouping and seek their support in its implementation.

4. All schools, especially those serving students during the middle years between elementary and high school should seek to do needs assessment of the status of school functioning in terms of academic achievement, student attitudes/beliefs, community perception of the schools, etc., to determine where, if any, problems may be lurking. The middle school configuration and its associated practices have the potential of meeting a number of identified problems related to educating pre-adolescents or early adolescents.

Recommendations for Further Research

The significant findings of this study plus the conclusion of other research reviewed suggests additional avenues to study. They include the following:

1. A continuation of this study into other academic areas measured by MEAP such as science to determine if the current findings hold up in other academic areas as well for MCEA school districts.
2. The present study should be replicated with a larger sample of Michigan school districts that go beyond the confines of MCEA districts.
3. Further controlled experimental research employing randomly sampled or matched students is suggested that addresses more conclusively the issues of whether middle school or junior high school experiences results in greater academic performance.
4. The use of different instrumentation that focuses on academic performance with greater range of skills than MEAP and uses measurement that approaches interval scaling such as the California Achievement Tests (CAT), Iowa Tests of Basic Skills (ITBS), Metropolitan Achievement Tests (MAT), etc., may be interesting and fruitful.

5. Studies should be undertaken to determine whether there is a significant academic achievement differences between reading and mathematics between middle and junior high schools. The current study suggests that a greater effect was seen in reading (larger calculated chi-square values) than mathematics (smaller but still significant chi-square values).
6. Further research is suggested to determine if achievement in reading peaks in the middle school at the end of sixth or beginning of seventh grade and then declines in relationship to junior high schools over the course of grades seven and eight.
7. Further research is suggested to determine if the treatment (teacher-advisor programs, transition and articulation activities, interdisciplinary team teaching and flexible and block schedules) exists in all middle schools sampled. Also to determine if this treatment caused the difference between the results of middle schools and junior high schools.
8. Studies should be undertaken to determine whether the middle school experience increases or decreases the academic achievement of those students performing in the lower two categories on MEAP.
9. The present study should be replicated using the new MEAP.

A single study cannot cover the multitude of questions related to middle schools versus junior highs and academic achievement. This study stands as one causal comparative study suggesting that middle schools are superior in academic achievement as measured by MEAP to junior highs in Middle Cities Educational Association (MCEA) districts in the State of Michigan.

APPENDICES

APPENDIX A

TABLE A.1. MEAP: THE SKILL AREAS ASSESSED

GRADE 7		GRADE 10	
Skill Area	# of Objec	Skill Area	# of Objec
READING TEST		READING TEST	
<u>Cognitive Skills</u>		<u>Cognitive Skills</u>	
Vocabulary Meaning	5	Vocabulary	5
Literal Comprehension	5	Literal Comprehension	5
Inferential Comprehension	7	Inferential Comprehension	8
Critical Reading Skills	2	Critical Reading Skills	3
Related Study Skills	4	Related Study Skills	3
Sub-Total	23	Sub-Total	24
MATHEMATICS TEST		MATHEMATICS TEST	
<u>Core</u>		<u>Core</u>	
Numeration	2	Whole Numbers	2
Whole Numbers	8	Decimals	6
Decimals	3	Fractions	8
Fractions	6	Ratio/Proportions/Percent	2
Metric Measurement	4	Metric Measurement	2
Non-Metric Measurement	2	Non-Metric Measurement	3
Geometry	2	Geometry	1
Probability & Statistics	1	Probability & Statistics	2
		Equations, Expressions & Graphs	2
Sub-Total	28	Sub-Total	28

Source: Michigan Educational Assessment Handbook, 1985-86 and 1988-89, Michigan State Board of Education, p. 3.

APPENDIX B

TABLE B.1. PERCENT MASTERY IN MATHEMATICS BY CATEGORY OF ACHIEVEMENT FOR SELECTED MIDDLE SCHOOLS AND JUNIOR HIGHS ON THE SEVENTH GRADE MICHIGAN EDUCATIONAL ASSESSMENT PROGRAM (MEAP), 1985-1986.

DISTRICT TYPE		Category of Achievement			
District/School	Number Tested	1	2	3	4
MIDDLE SCHOOL					
<u>Bay City</u>					
- Western	192	0.5	7.3	18.2	74.0
- Washington	262	1.5	4.6	22.9	71.0
- Kolb	212	1.4	7.5	25.9	65.1
<u>Flint</u>					
- Bryant	269	0.4	4.8	40.1	54.6
- Holmes	365	0.8	7.1	37.5	54.5
- Lowell	323	3.1	10.5	34.1	52.3
- Flint Academy	142	0.0	0.0	22.5	77.5
- Whittier	409	0.7	2.4	23.0	73.8
- McKinley	355	0.3	4.2	27.3	68.2
- Longfellow	351	2.6	2.6	24.8	70.1
<u>Lansing</u>					
- Otto	352	2.8	10.2	26.1	60.8
- Pattengill	331	1.2	3.0	17.3	78.2
- Rich	399	0.8	5.8	19.8	73.7
- Gardner	428	1.4	9.8	30.4	58.4
<u>Willow Run</u>					
- Edmonson	229	1.3	8.3	33.2	57.2
TOTAL	4,619	18.8	88.1	403.3	989.4
JUNIOR HIGH					
<u>Battle Creek</u>					
- Northwestern	166	3.0	7.2	23.5	66.3
- Southeastern	84	2.4	21.4	38.1	38.1
- Southwestern	89	1.1	12.4	33.7	52.8
- Springfield	69	0.0	8.7	36.2	55.1
- Kellogg	187	0.5	5.3	24.6	69.5
<u>Jackson</u>					
- Parkside	490	2.7	15.5	31.2	50.6
- Jackson	28	3.6	14.3	39.3	42.9
<u>Muskegon</u>					
- Bunker	65	0.0	4.6	13.8	81.5
- Nelson	119	0.0	0.8	16.0	83.2
- Steele	242	1.2	3.3	19.4	76.0
<u>Saginaw</u>					
- Eddy	87	0.0	8.0	21.8	70.1
- Central	173	2.9	5.2	43.9	48.0
- North	245	0.8	9.0	27.3	62.9
- South	296	0.7	4.7	23.6	70.9
- Webber	256	1.6	9.0	34.0	55.5
TOTAL	2,596	20.5	129.4	426.4	923.4

**TABLE B.2. PERCENT MASTERY IN READING BY CATEGORY OF
ACHIEVEMENT FOR SELECTED MIDDLE SCHOOLS AND JUNIOR
HIGHS ON THE SEVENTH GRADE MICHIGAN EDUCATIONAL
ASSESSMENT PROGRAM (MEAP), 1985-1986.**

DISTRCT TYPE		Category of Achievement			
District/School	Number Tested	1	2	3	4
MIDDLE SCHOOL					
<u>Bay City</u>					
- Western	192	1.0	5.2	9.4	84.4
- Washington	262	0.8	4.2	11.5	83.6
- Kolb	212	0.0	5.7	8.5	85.8
<u>Flint</u>					
- Bryant	267	3.4	15.0	23.6	58.1
- Holmes	355	0.6	11.0	20.6	67.9
- Lowell	326	4.3	12.3	15.6	67.8
- Flint Academy	142	0.0	0.0	4.9	95.1
- Whittier	406	1.2	2.5	10.3	86.0
- McKinley	355	0.3	3.1	11.3	85.4
- Longfellow	359	1.1	1.7	11.1	86.1
<u>Lansing</u>					
- Otto	353	1.4	7.6	14.7	76.2
- Pattengill	331	0.9	7.6	15.4	76.1
- Rich	399	1.5	5.5	13.5	79.4
- Gardner	432	1.6	6.5	13.9	78.0
<u>Willow Run</u>					
- Edmonson	229	1.3	7.9	11.4	79.5
TOTAL	4,620	19.4	95.8	195.7	1,189.4
JUNIOR HIGH					
<u>Battle Creek</u>					
- Northwestern	166	1.8	13.9	19.3	65.1
- Southeastern	84	3.6	17.9	17.9	60.7
- Southwestern	89	3.4	7.9	25.8	62.9
- Springfield	69	1.4	5.8	18.8	73.9
- Kellogg	187	2.7	7.5	14.4	75.4
<u>Jackson</u>					
- Parkside	490	4.1	13.1	16.3	66.5
- Jackson	28	3.6	10.7	28.6	57.1
<u>Muskegon</u>					
- Bunker	65	0.0	4.6	10.8	84.6
- Nelson	119	2.5	3.4	18.5	75.6
- Steele	242	0.8	8.3	19.0	71.9
<u>Saginaw</u>					
- Eddy	87	2.3	8.0	33.3	56.3
- Central	173	5.2	11.0	30.1	53.8
- North	245	0.0	7.3	13.5	79.2
- South	296	0.3	6.4	9.5	83.8
- Webber	256	2.7	13.7	19.9	63.7
TOTAL	2,596	34.4	139.5	295.7	1,030.5

TABLE B.3. PERCENT MASTERY IN MATHEMATICS BY CATEGORY OF ACHIEVEMENT FOR SELECTED MIDDLE SCHOOLS AND JUNIOR HIGHS ON THE TENTH GRADE MICHIGAN EDUCATIONAL ASSESSMENT PROGRAM (MEAP), 1988-1989.

DISTRICT TYPE		Category of Achievement			
District/School	Number Tested	1	2	3	4
MIDDLE SCHOOL					
<u>Bay City</u>					
- Central	287	1.7	7.7	13.9	76.7
- Handy	237	0.4	5.1	17.7	76.8
- Western	269	0.0	3.0	14.9	82.2
<u>Flint</u>					
- Central	410	2.7	7.8	24.6	64.9
- Southwestern	282	1.4	2.8	15.2	80.5
- Northwestern	375	5.9	8.8	25.6	59.7
- Schools of Choice	173	2.3	17.3	39.3	41.0
- Northern	431	1.4	7.0	31.1	60.6
<u>Lansing</u>					
- Alternative Ed.	23	17.4	26.1	21.7	34.8
- Eastern	439	4.6	11.2	22.6	61.7
- Everett	385	3.1	16.1	24.4	56.4
- Sexton	384	4.9	11.7	20.6	62.8
<u>Willow Run</u>					
- Willow Run	210	3.3	17.6	32.4	46.7
TOTAL	3,905	49.1	142.2	304.0	804.8
JUNIOR HIGH					
<u>Battle Creek</u>					
- Central	375	3.2	10.7	20.0	66.1
- Springfield	85	10.6	14.1	36.5	38.8
<u>Jackson</u>					
- Jackson	435	9.0	14.0	14.0	63.0
- Jackson Alt.	28	3.6	21.4	39.3	35.7
<u>Muskegon</u>					
- Muskegon	352	0.6	3.4	18.5	77.6
- Muskegon Alt.	41	2.4	14.6	43.9	39.0
<u>Saginaw</u>					
- Arthur Hill	509	1.4	9.0	20.8	68.8
- Saginaw	318	4.7	22.0	33.6	39.6
TOTAL	2,143	35.5	109.2	226.6	428.6

**TABLE B.4. PERCENT MASTERY IN READING BY CATEGORY OF
ACHIEVEMENT FOR SELECTED MIDDLE SCHOOLS AND JUNIOR
HIGHS ON THE TENTH GRADE MICHIGAN EDUCATIONAL
ASSESSMENT PROGRAM (MEAP), 1988-1989.**

DISTRICT TYPE		Category of Achievement			
District/School	Number Tested	1	2	3	4
MIDDLE SCHOOL					
<u>Bay City</u>					
- Central	287	0.3	3.5	12.2	84.0
- Handy	237	0.4	4.6	13.9	81.0
- Western	269	0.0	2.6	7.8	89.6
<u>Flint</u>					
- Central	410	0.7	7.3	15.4	76.6
- Southwestern	289	1.0	2.8	8.3	87.9
- Northwestern	384	0.8	6.5	26.3	66.4
- Schools of Choice	173	1.2	17.3	26.0	55.5
- Northern	431	0.9	5.8	21.6	71.7
<u>Lansing</u>					
- Alternative Ed.	23	17.4	8.7	13.0	60.9
- Eastern	446	2.7	8.1	15.2	74.0
- Everett	385	0.8	9.9	16.6	72.7
- Sexton	387	1.3	7.5	14.7	76.5
<u>Willow Run</u>					
- Willow Run	212	4.2	13.7	12.7	69.3
TOTAL	3,933	31.7	98.3	203.7	966.1
JUNIOR HIGH					
<u>Battle Creek</u>					
- Central	375	2.1	10.1	12.8	74.9
- Springfield	87	6.9	13.8	14.9	64.4
<u>Jackson</u>					
- Jackson	437	5.0	11.4	10.3	73.2
- Jackson Alt.	29	13.8	20.7	13.8	51.7
<u>Muskegon</u>					
- Muskegon	353	0.0	1.1	14.2	84.7
- Muskegon Alt.	41	0.0	22.0	19.5	58.5
<u>Saginaw</u>					
- Arthur Hill	510	1.4	8.8	15.5	74.3
- Saginaw	318	3.5	18.2	27.7	50.6
TOTAL	2,150	32.7	106.1	128.7	532.3

BIBLIOGRAPHY

BIBLIOGRAPHY

- Alexander, W. M. (1978). How fares the middle school movement? Middle School Journal, 9 (3), 3, 19-21.
- Alexander, W. M. (1986). Middle level schools as they should and could be (ISSN02764482). National Association of Secondary School Principals.
- Alexander, W. M. & Kealy, R. P. (1969). From junior high school to middle school. The High School Journal, 53 (3), 151-163.
- Alexander, W. M. & McEwin, C. K. (1989). Schools in the middle: Progress 1968-1988 (ISSN02764482). National Association of Secondary School Principals.
- Alexander, W. M. & Others (1968). The emergent middle school. New York: Holt, Rinehart, and Winston, Inc.
- Borg, W. R. & Gall, M. D. (1971). Educational research: An introduction (2nd ed.). New York: David McKay Company, Inc.
- Brantley, W. E. (1982). West Chester area school district middle school survey. Unpublished report.
- Brazee, E. N. (1987). Moving into and out of the middle level school. Schools in the middle: A report on trends and practices. Reston, VA: National Association of Secondary Schools Principals.
- Brazee, E. N. (1991). Tomorrow's schools: Yesterday, today and tomorrow. Middle School Journal, March, 1991, 57-59.
- Briggs, T. H. (1920). The junior high school. New York: Houghton Mifflin Company.
- Bunker, F. (1935). The junior high movement: Its beginning. Washington, D.C.: Roberts.
- Calhoun, F. D. (1983). Organization of the middle grades: A summary of research. Arlington, VA: Educational Research Service, Inc.
- Campbell, D. T. & Stanley, J. C. (1963). Experimental and quasi-experimental designs for research. Chicago: Rand McNally & Company.

BIOLOGRAPHY (CONT.)

- Carnegie Corporation (1989). Turning points: Preparing american youth for the 21st century. New York: Author.
- Commission on the Reorganization of Secondary Education (1918). Cardinal principles of secondary education (Bulletin No. 35). Washington, D.C.: United States Department of the Interior, Bureau of Education.
- Council on Middle Level Education (1985). An agenda for excellence at the middle level. Reston, VA: National Association of Secondary School Principals.
- Davis, C. O. (1924). Junior high school education. Yonkers-On-Hudson, New York: World Book Company.
- Eichhorn, D. H. (1965). Nongraded middle school: Supporting theory and conceptualized functional model. Unpublished doctoral dissertation, University of Pittsburgh.
- Eichhorn, D. H. (1966). The middle school. New York: The Center for Applied Research in Education.
- Epstein, J. L. (1990). What matters in the middle grades: Grade span or practices? Phi Delta Kappan, 71 (6), 438-444.
- Epstein, J. L., & MacIver, D. J. (1990). Education in the middle grades: Overview of a national survey of practices and trends. Baltimore, MD: Center for Research on Elementary and Middle Schools, The John Hopkins University.
- Gatewood, T. (1972). What research says about the junior high versus the middle school. North Central Association Quarterly, 46, 264-275.
- Gatewood, T. & Dils, C. (1975). The middle school we need. A report from the ASCD working group on emergent adolescent learner. Washington, D.C.: Association for Supervision and Curriculum Development.
- Gaumnitz, W. H. and Committe (1954). Junior high school facts: A graphic analysis (U.S. Office of Education Miscellaneous No. 21). Washington, D.C.: Government Printing Office.

BIBLIOGRAPHY (CONT.)

- Georgiady, N. P., Riegle, J., & Romano, L. G. (1974). What are the characteristics of the middle school? NASSP Bulletin, 58 (381), 72-77.
- Gerson, R. J. (1968). Proposals for the middle school curriculum. Unpublished doctoral dissertation, Columbia University.
- Glass, G. V. & Hopkins, K. D. (1984). Statistical methods in education and psychology. Englewood Cliffs, NJ: Prentice-Hall.
- Gruhn, W. & Douglass, H. (1956). The modern junior high school. New York: Ronald Press.
- Hall, G. S. (1904). Adolescence, its psychology and its relations to physiology, anthropology, sociology, sex, crime, religion, and education (Vols. I and II). New York: D. Appleton Company.
- Howard, A. W. & Stounbis, G. C. (1970). The junior high and middle school: Issues and practices. Scranton, PA: Intext Educational Publishers.
- Hunt, J. M. (1961). Intelligence and experience. New York: Ronald Press.
- Inglis, A. (1918). Principles of secondary education. New York: Houghton Mifflin Company.
- Kohut, S., Jr. (1980). The middle school: A bridge between elementary and secondary schools. Washington, D.C.: National Education Association.
- Koos, L. V. (1927). The junior high school. Boston, MA: Ginn and Company.
- Lentz, D. W. (1956). History and development of the junior high school. Teachers College Record, 57 (8), 522-530.
- Lipsitz, J. S. (1977). Growing up forgotten: A review of research and programs concerning early adolescence. Lexington, MA: Lexington Books, D.C. Heath and Company.
- Lounsbury, J. and Vars, G. (1978). A curriculum for the middle school years. New York: Harper and Row Publishers.

BIBLIOGRAPHY (CONT.)

- MacIver, D. J. (1990). Meeting the needs of young adolescents: Advisory groups, interdisciplinary teaching teams, and school transition programs. Phi Delta Kappan, 71 (6), 458-464.
- Michigan Department of Education (1985). Michigan educational assessment program handbook. Lansing, MI: Michigan State Board of Education.
- Michigan Department of Education (1989). Michigan educational assessment program handbook. Lansing, MI: Michigan State Board of Education.
- Moss, T. C. (1969). Middle School. Boston, MA: Houghton Mifflin Company.
- National Education Association Committee on Secondary School Studies (1969). Report of the committee on secondary school studies. New York: Arno Press and the New York Times (Reprint of 1894 Edition of the Committee of Ten).
- National Middle School Association (1982). This we believe. Columbus, OH: Omni Press.
- New York City Board of Education (1965). New York City board of education minutes. New York: Author.
- Phelps, J. L., Donovan, D. L., Roeber, E. D., Carr, R. A. & Coswell, M.S. (1980). Technical report: Vol. I. Lansing, MI: Department of Education, Michigan Educational Assessment Program.
- Phelps, J. L., Donovan, D. L., Roeber, E. D., Carr, R. A. & Coswell, M.S. (1981). Technical report: Vol. II. Lansing, MI: Department of Education, Michigan Educational Assessment Program.
- Popham, W. J. & Husek, T. R. (1969). Implications of criterion-referenced measurement. Journal of Educational Measurement, 6, 1-9.
- Popper, S. H. (1967). The american middle school: An organizational analysis. Waltham, MA: Blaisdell Publishing Company.

BIBLIOGRAPHY (CONT.)

- Romano, L. G. (1982). The middle school and its issues. Michigan Elementary and Middle School Principals Association, 58 (1), 29-30.
- Romano, L. G. & Georgiady, N. P. (1977). Growth characteristics of middle school children: Curriculum implications. Middle School Journal, 8 (1), 12-15.
- Shakrami, M. S. (1973). A formative evaluation of the mathematics component of an experimental elementary teacher education program at Michigan State University. Unpublished doctoral dissertation, Michigan State University.
- Siegel, S. (1956). Nonparametric statistics for the behavioral sciences. New York: McGraw-Hill Book Company.
- Smith, J. (1975). A Comparison of middle school instruction and conventional instruction with respect to the academic achievement and self-concept of pre and early adolescents. Unpublished doctoral dissertation, University of Akron.
- Stout, D. J. (1962). Some characteristics and practices in junior high schools in five midwestern states. Unpublished doctoral dissertation, University of Iowa.
- Trauschke, E. M. (1970). An evaluation of a middle school by a comparison of the achievement, attitudes, and self-concept of students in a middle school with students in other school organizations. Unpublished doctoral dissertation, University of Florida.
- Trauschke, E. M. & Mooney, P. (1974). Middle school accountability middle school in the making. Washington, D.C.: Association for Supervision and Curriculum Development.
- Van Til, C. F., Vars, G. F., & Lounsbury, J. H. (1967). Modern education for the junior high years. Indianapolis, IN: Bobbs Merrill.
- Wesley, E. (1957). NEA: The first hundred years. New York: Harper and Brothers.
- Wiles, J. W. & Thompson, J. (1975). Middle school research 1968-1974: A review of substantial studies. Educational Leadership, 32 (6), 421-423.

BIBLIOGRAPHY (CONT.)

Wolfe, R. O. (1972). Schools for the middle years: A comparative study of organizational climate. Unpublished doctoral dissertation, University of Pennsylvania.

Zigler, E. F. & Finn-Stevenson, M. (1987). Children, development and social issues. Lexington, MA: D.C. Heath.