



A comparison of middle school and junior high school achievement and attitudes  
by Thomas Joseph Maguire

A thesis submitted in partial fulfillment of the requirements for the degree of Doctor of Education  
Montana State University

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Abstract:

The major problem of this study was to determine if there were any significant differences in achievement on the Iowa Tests of Basic Skills (ITBS) in the areas of reading skills, language skills, work-study skills, or mathematics skills among seventh grade students who attended North Junior High School in Great Falls, Montana. This school made a transition over a three-year period from a departmentalized junior high school to a middle school. The secondary problem of this study was to determine if there were significant differences in junior high and middle school students' attitudes towards school as measured by the Minnesota School Attitude Survey (MSAS). The third problem of this study was to determine if there were any differences in the teachers' and principal's perceptions of the openness or closedness of the school climate in junior high and middle school by comparing responses on the Pupil Control Ideology (PCI) Form and the Rutgers Secondary School Climate Inventory-Final Form (RSSCI-FF) administered in 1986 and 1990.

Twenty-two hypotheses were used to test the data for the first and secondary problems of this study. Visual examination of means and posted scores on scattergrams were used to analyze the data for the third problem.

Findings indicated that: there were few significant differences in student achievement or attitude; non-program students experienced significant decreases in reading and language achievement when interdisciplinary teaming was instituted without homebase (affective education); and teacher and principal attitudes showed improvement in a middle school. The study further showed that although full implementation of the middle school organizational pattern (treatment 4) did not negatively affect students in any area, only the PACE students had significant gains in achievement with a fully implemented middle school.

The major recommendations for further study include: conducting a study with a school utilizing block scheduling; conducting a study to test the variable of a well-planned staff development program; investigating the longitudinal effects of middle school treatments; and conducting a study to identify reasons why teaming alone negatively affects non-program student achievement.

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by

**Thomas Joseph Maguire**

**A thesis submitted in partial fulfillment  
of the requirements for the degree**

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APPROVAL

of a thesis submitted by

Thomas Joseph Maguire

This thesis has been read by each member of the graduate committee and has been found to be satisfactory regarding content, English usage, format, citations, bibliographic style, and consistency, and is ready for submission to the College of Graduate Studies.

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## ABSTRACT

The major problem of this study was to determine if there were any significant differences in achievement on the Iowa Tests of Basic Skills (ITBS) in the areas of reading skills, language skills, work-study skills, or mathematics skills among seventh grade students who attended North Junior High School in Great Falls, Montana. This school made a transition over a three-year period from a departmentalized junior high school to a middle school. The secondary problem of this study was to determine if there were significant differences in junior high and middle school students' attitudes towards school as measured by the Minnesota School Attitude Survey (MSAS). The third problem of this study was to determine if there were any differences in the teachers' and principal's perceptions of the openness or closedness of the school climate in junior high and middle school by comparing responses on the Pupil Control Ideology (PCI) Form and the Rutgers Secondary School Climate Inventory—Final Form (RSSCI-FF) administered in 1986 and 1990.

Twenty-two hypotheses were used to test the data for the first and secondary problems of this study. Visual examination of means and posted scores on scattergrams were used to analyze the data for the third problem.

Findings indicated that: there were few significant differences in student achievement or attitude; non-program students experienced significant decreases in reading and language achievement when interdisciplinary teaming was instituted without homebase (affective education); and teacher and principal attitudes showed improvement in a middle school. The study further showed that although full implementation of the middle school organizational pattern (treatment 4) did not negatively affect students in any area, only the PACE students had significant gains in achievement with a fully implemented middle school.

The major recommendations for further study include: conducting a study with a school utilizing block scheduling; conducting a study to test the variable of a well-planned staff development program; investigating the longitudinal effects of middle school treatments; and conducting a study to identify reasons why teaming alone negatively affects non-program student achievement.

## CHAPTER 1

### INTRODUCTION

Since the latter part of the nineteenth century, the dilemma of educating pre-adolescents and early adolescents, typically the 11 to 14 year-old, has been a focus of educational thought and research. As early as 1888, formal consideration was given to this age group. Harvard University President Charles Eliot questioned the practice of reviewing in the seventh and eighth grades what was taught during the first six years of schooling (Brimm, 1969). Speaking to a meeting of the Department of Superintendence of the National Education Association (NEA) in Washington, D.C., Eliot suggested that school programs be shortened and enriched and proposed that the age of admission to college be lowered to 18. He also believed that college preparatory subjects should be introduced into the schools at an earlier grade level. These proposals provided the catalyst for a chain of events that went beyond the establishment of junior high schools (Popper, 1967; Vars & Lounsbury, 1967).

During the next three decades, a series of committees continued to evaluate educational practices in the United States. The first such group was the Committee of Ten, chaired by Eliot, which submitted its findings in 1893.

The Committee stated that the main purpose of secondary education was to prepare students for college and for life in general, and recommended a downward extension to include the seventh and eighth grades into the secondary school curriculum (Vars & Lounsbury, 1967). The Committee of Fifteen, established by NEA's Department of Superintendence, supported the findings of the Committee of Ten in a report in 1895.

Numerous additional committees (e.g., the Commission of Twenty-One, the Committee on the Advisability of the Six-Six Plan, and the Committee on the Cultural Element and the Economy of Time in Education) all suggested that high school curriculum begin earlier. In 1918, the NEA Commission on the Reorganization of Secondary Education issued the Cardinal Principles of Secondary Education. This document suggested a series of general guidelines for education and strongly urged the organizational pattern of a six-six arrangement, with the last six years split as a three-three approach. The junior high school, the Commission suggested, should: (1) introduce departmentalized instruction, (2) allow for elective course work, and (3) provide an environment in which young adolescents could explore their interests and abilities (Alexander & Others, 1968; Brimm, 1969; Vars & Lounsbury, 1967).

Other factors also contributed to the development of the junior high school. New evidence relating the emotional and physical characteristics of puberty supported a new type of school for these students. Calvin Davis (1924, p. 215) reported that children entered puberty "with all its concomitant

effects upon the intellectual, emotional, and volitional nature of youth" two years earlier than previously had been believed. More current research suggested that the 12 to 15 year-old students, generally in grades seven through nine, are the ones involved in the transition from childhood to adolescence (E.L. Davis, 1970).

Researchers and educational scholars have agreed that the initial development of the junior high school was for the purpose of meeting the needs of the students (Gruhn & Douglass, 1956). Lounsbury (1962, p. 45) explained, "If the junior high school has any real justification as a separate educational unit of a distinct level of education, today or any day, that justification must grow out of the nature of the early adolescents."

Another concern that drew attention to this age group resulted from the findings that students were dropping out of school at alarming rates. According to Brimm (1969), early studies in 1922 and 1924 reported that only one-tenth of the children entering the first grade ever graduated high school, and almost one-third dropped out before ninth grade.

Hench (1967) investigated the purposes that were originally assigned to the junior high school. He determined that there were four major functions: (1) to solve the problem of dropouts, (2) to introduce college preparatory material earlier, (3) to offer "pre-vocational" training to those students who would not attend college, and (4) to design programs which took into account individual differences among students.

Beals (1952) argued that purposes such as vocational training and rounding out the education of potential dropouts no longer served as a sufficient justification. Longer mandatory education laws further eroded the original functions. The purposes of the junior high school have changed as child labor laws, compulsory attendance, and a different social order have impacted the schools. The emphasis, no longer on vocational training and holding power, shifted to providing an educational program for the early adolescent which included a basic general education, guidance, and a strong exploratory aspect (Howard & Stoumbis, 1970). These ideas led to the beginning of the middle school concept.

The middle school movement responded to what was perceived as shortcomings of the junior high school. According to Brimm (1969), the middle school movement was basically a reactionary movement against the existing structure. Alexander and Others (1968) felt that the junior high school had generally become a school more like the high school, better suited to the teenager than the "in-between-ager." The middle school, on the other hand, focused on the student (Stewart, 1975). Affective education, usually in the form of homerooms or homebases, and interdisciplinary teaming were the vehicles used to meet the overall needs of the student (Alexander & George, 1981). The interdisciplinary team approach provided an excellent opportunity to strengthen the instructional program by focusing on the learning needs of the students (Merenbloom, 1986). To further assist in achievement and to

address the emotional and social needs of the student, advisor/advisee programs were essential. Johnston and Markle (1986), in a study of related research, concluded that there was a relationship between self-concept and achievement.

The middle school owed its origin, at least in part, to the accusation that the junior high school failed to achieve its purpose, i.e., meeting the needs of the pre-adolescent and young adolescent. Gatewood and Dils (1975) described the growth of the middle schools as "modest" during the 1950s and early 1960s, but "incredible" from the mid-1960s through the 1970s. Cuff (1967) identified 499 middle schools during the 1965-66 school year. By 1978 there were 4,060 middle schools in operation across the nation (Brooks, 1978). Soares (1973) and Gatewood and Dils (1975) described the middle school movement as one of the most remarkable phenomenon in the history of American education.

The development of the middle school was not entirely for the purpose of meeting the needs of the "transescent," the 10 to 14 year-old student. Booker (1978) claimed that overpopulation of the elementary schools, a result of the post World War II baby boom, also influenced grade organizations.

Some authorities viewed the middle school as an opportunity to integrate ethnic and racial groups at an earlier age, since neighborhood elementary schools tended to be by geographic area. Therefore, moving students in the fifth or sixth grade out of neighborhood schools into a centralized middle

school helped integration (Brimm, 1969; Cuff, 1967; Onofrio, 1971). Valentine (1981), in a survey sponsored by the National Association of Secondary School Principals (NASSP), concluded that the middle school was adopted by the majority of school districts in order to provide a program suited to the middle level child. Other middle school authorities identified similar reasons (Brown, 1981; Friesen, 1974; Georgiady & Romano, 1977; Howard & Stoumbis, 1970; Moss, 1969; Tegarden, 1976).

The following components of middle school were listed by Brown (1981, pp. 18-19) as key ingredients for success:

- (1) A grade pattern that began with either the fifth or sixth grade and ended with eighth grade.
- (2) An educational philosophy that emphasized the needs and interests of the students.
- (3) A willing attitude on the part of the staff toward instructional experimentation, open classrooms, team teaching, utilization of multimedia teaching techniques, and student grouping by talent and interest, rather than age alone.
- (4) A focus on educating the whole child, not just the intellect.
- (5) A program to help ease the transition between childhood and adolescence.

Through these qualities, the middle school attempted to fulfill the function of what supporters called "humanizing" the education of pre-adolescents and early adolescents.

### Statement of the Problem

The major problem of this study was to determine if there were any significant differences in achievement on the Iowa Tests of Basic Skills (ITBS) in the areas of reading skills, language skills, work-study skills, or mathematics skills among seventh grade students who attended North Junior High School in Great Falls, Montana over a three-year period. This school made a transition from a departmentalized junior high school to a middle school, incorporating interdisciplinary teaming, homebase (affective education), and interdisciplinary units of instruction.

The major problem allowed the researcher to determine if there was a difference in the ITBS scores of students who attended North Junior High School during the 1985-86 school year as compared to students who attended the school over the next three years, after it had been restructured as a middle school. The study examined interaction of four treatments and four student types on four dependent variables. Treatments included: junior high school (treatment 1); interdisciplinary teaming (treatment 2); interdisciplinary teaming and homebase (treatment 3); and interdisciplinary teaming, homebase and interdisciplinary units of instruction (treatment 4). The four student types consisted of: those qualifying for free lunch (type 1, at-risk), those in tutorial reading labs (type 2, tutorial), those in no special programs (type 3, non-program), and those involved in the gifted and talented

education program (type 4, PACE). Dependent variables were seventh-grade ITBS scores in: language skills, reading skills, work-study skills, and mathematics. Additionally, this problem allowed the researcher to determine the relationship of treatment types on ITBS scores of seventh graders for each student type.

The secondary problem of this study was to determine if there were significant differences between junior high school and middle school students' attitudes towards school and the school programs. The secondary problem allowed the researcher to examine the differences in student attitudes as they related to different locations which were identified as a junior high school or a middle school, and to determine if these attitudes were dependent on school organization.

The third problem of this study was to determine if there were any differences in the teachers' and principal's perceptions of the openness or closedness of the school climate in junior high school and middle school. The third problem allowed the researcher to investigate teacher and principal perceptions of school climate as measured by teacher/teacher and teacher/principal interaction and pupil control as the school changed from a junior high school to a middle school, and to determine if the change of school orientation had a positive or negative effect on these attitudes.

### Need for the Study

The following research supported the need to expand upon the current body of literature.

While there are numerous differences and similarities in a junior high school program as compared to a middle school program, a few characteristics of the middle school are notable. Interdisciplinary teaming, an affective homebase program, and interdisciplinary teaching units are the cornerstones of successful middle schools (George & Stevenson, 1989). Putbrese (1989) suggested that an advisor/advisee program is fundamental to the middle school concept. In his study based on 3,400 surveys from around the nation, Putbrese concluded that reports of research on affective education clearly supported the concept that advisory programs are necessary for the middle level school. Early adolescents need to feel known and recognized. The advisory program has the potential of attending to this need.

Alexander and George (1981) studied indicators of progress in the middle schools. They determined that the middle school should exhibit the following two characteristics: (1) an interdisciplinary organization; and (2) an adequate guidance program, with a teacher for such broad goals and curriculum domains as personal development.

There seemed to be a general agreement among middle school educators that interdisciplinary teaming should be a part of the middle school

program. From this teaming, the close relationships and affective considerations are being maintained and addressed. George and Stevenson (1989, p. 10), in reporting on the best teams and the best schools, stated:

A growing national consensus among middle level educators indicates that the interdisciplinary team is an essential element of effective middle level education. Emphasis was placed upon creating a healthy family atmosphere in which youngsters were encouraged to develop feelings of belonging with other team members -- adults and peers.

In addition to the benefits gathered from interdisciplinary teaming in the areas of affective education, teaming also has helped to create a better climate for learning. When compared to tracking and ability grouping, achievement levels are generally better with students placed in heterogeneously grouped interdisciplinary teams (Hawley & Rosenholtz, 1987). The preference among leaders of acknowledged exemplary middle schools has been less tracking (George, 1988).

As with most questions in education, controversy regarding the middle school's advantage over the junior high school has continued. Some research supported the junior high school's departmentalized approach, indicating that seventh grade achievement gains were greater than achievement gains with interdisciplinary approaches (Odetola, 1972). Smith (1975) found no significant differences in students' self-concept when involved in departmentalized junior high school programs compared to middle school interdisciplinary programs. Other research was conducted that suggested achievement and junior high school departmentalization and middle school

interdisciplinary approaches showed no significant differences (Gaskill, 1971; Smith, 1975). When Gatewood (1970) studied teacher attitudes toward students, administration, and colleagues, he concluded that middle school approaches made little difference. Bryan and Erickson (1970) also found little difference in teacher attitudes toward the organizational structure when teaming was compared to departmentalization.

In summary, research on the two approaches, departmentalization in junior high schools and interdisciplinary teaming in middle schools, remains controversial. There are supporters for both approaches, and additional research appears to be needed.

#### Definition of Terms

The following definitions have been used throughout the study and represent the independent variables, dependent variables, and the various populations that were researched.

- (1) Junior high school (treatment 1): A school organized around departmentalization which does not incorporate a homebase program (affective education) or utilize interdisciplinary units of instruction.
- (2) Interdisciplinary teaming (treatment 2): The organizing of faculty into a group of teachers with a similar schedule to share responsibility for planning, teaching, and evaluating curriculum and instruction in more than one instructional area for the same group of students (Alexander & George, 1981; Wiles & Bondi, 1981).

- (3) **Homebase**: Refers to the middle school program of affective education; that is, both group and individual guidance services should be provided to all students. Provisions for such services must be of a highly individualized and personal nature. These services should be provided by both teachers and trained guidance counselors. An advisor/advisee program should exist in a format that enables every student to have a relationship with at least one caring, open, and understanding adult (Alexander & George, 1981; Georgiady & Romano, 1977; Wayson et al., 1982). The homebases at North Middle School (NMS) meet daily for 25 minutes.
- (4) **Treatment 3**: The combination of interdisciplinary teaming and homebase.
- (5) **Interdisciplinary units of instruction**: Units of instruction which reinforce information obtained in one class into all teamed classes. This type of unit necessitates the cooperation and planning of an interdisciplinary team of teachers. The core teachers at NMS have two common planning periods each day to design interdisciplinary units.
- (6) **Treatment 4**: The combination of interdisciplinary teaming, homebase, and interdisciplinary units of instruction.
- (7) **Language Skills Total Battery**: A test component of the Iowa Tests of Basic Skills. It includes subtests in spelling, capitalization, punctuation, and word usage.

- (8) **Mathematics Skills Total Battery**: A test component of the Iowa Tests of Basic Skills. It includes subtests in concepts, problems, and computation.
- (9) **Reading Skills Total Battery**: An aggregate score in the Iowa Tests of Basic Skills.
- (10) **Work-Study Skills Total Battery**: A component of the Iowa Tests of Basic Skills. It includes subtests on visual material and references.
- (11) **At-risk students (student type 1)**: Seventh grade students who qualified for free lunch due to the low socioeconomic status of their families.
- (12) **Tutorial students (student type 2)**: Students who participated in the reading lab tutorial program while in the seventh grade. These students were generally low achievers.
- (13) **Non-program students (student type 3)**: Seventh grade students not involved in any of the special programs in the school and who could not be defined as at-risk, PACE students, or tutorial students.
- (14) **PACE students (student type 4)**: Students who were involved in the gifted and talented education program while seventh graders. These students were generally high achievers.
- (15) **Transescent**: Typically, the 10 to 14 year-old student.
- (16) **Custodialism**: Concern for maintenance of order, teacher preference for autocratic procedures and obedience (Robson, 1986).
- (17) **Humanism**: Interaction, teacher preference for democratic procedures and student participation in decision making (Robson, 1986).

Questions to Be Answered

The following research questions will be answered in this study:

- (1) Did non-program students (those not at-risk, not identified as PACE students, and not identified as tutorial students) realize significant differences in achievement in the middle school as compared to the junior high school?
- (2) Did at-risk students (those of the lowest socioeconomic status of the community) realize significant differences in achievement in middle school as compared to the junior high school?
- (3) Did PACE students (those in gifted and talented programs) realize significant differences in achievement in the middle school as compared to the junior high school?
- (4) Did tutorial students (those in tutorial programs) realize significant differences in achievement in the middle school as compared to the junior high school?
- (5) Were there significant differences in teacher attitudes toward pupil control, custodialism compared to humanism, in the middle school as compared to the junior high school?
- (6) Were there significant differences in teacher and principal perceptions of the openness or closedness of teacher interactions in the middle school as compared to the junior high school?

- (7) Were there significant differences in teacher and principal perceptions of the openness or closedness of teacher/principal interactions in the middle school as compared to the junior high school?
- (8) Were there significant differences in the cluster scores on the Minnesota School Attitude Survey of the seventh grade students in the middle school as compared to the junior high school students?
- (9) Was there significant interaction between the PACE students, the tutorial students, those at-risk, and the non-program students with the independent variables of interdisciplinary teaming, homebase (affective education), and interdisciplinary units of instruction on the ITBS scores in reading skills? (Simplified, this is a two-way analysis of variance checking for interaction between student type and treatment type for the independent variable of reading.)
- (10) Was there significant interaction between the PACE students, the tutorial students, those at-risk, and the non-program students with the independent variables of interdisciplinary teaming, homebase (affective education), and interdisciplinary units of instruction on the ITBS scores in language skills? (Simplified, this is a two-way analysis of variance checking for interaction between student type and treatment type for the independent variable of language skills.)
- (11) Was there significant interaction between the PACE students, the tutorial students, those at-risk, and the non-program students with the

independent variables of interdisciplinary teaming, homebase (affective education), and interdisciplinary units of instruction on the ITBS scores in work-study skills? (Simplified, this is a two-way analysis of variance checking for interaction between student type and treatment type for the independent variable of work-study skills.)

(12) Was there significant interaction between the PACE students, the tutorial students, those at-risk, and the non-program students with the independent variables of interdisciplinary teaming, homebase (affective education), and interdisciplinary units of instruction on the ITBS scores in mathematics skills? (Simplified, this is a two-way analysis of variance checking for interaction between student type and treatment type for the independent variable of mathematics.)

#### General Procedure

The data for the major question of this study were collected on the population of seventh grade students who had attended North Middle School (NMS) or North Junior High School (NJHS) for the following school years: 1985-86, 1986-87, 1987-88, or 1988-89. All students had taken the Iowa Tests of Basic Skills while they were attending NMS or NJHS. For each year of the study, the data were collected in the same manner.

This study began with the analysis of seventh grade student data, specifically, ITBS aggregate mean scores in language skills, reading skills, work-study

skills, and mathematics skills for the 1985-86 school year, and continued with an analysis of each year's seventh grade data through the 1988-89 school year. The students were categorized into four student types: type 1, at-risk; type 2, tutorial; type 3, non-program; and type 4, PACE. Each student type was studied individually to check for significant differences on the ITBS scores. Each successive year of the study, another middle school treatment was applied to the seventh graders. Analysis was completed to identify the effects the different treatment types had on the different student types as measured by the ITBS scores.

The Great Falls (Montana) School District selected North Junior High School and its seventh graders as the pilot for the transition from junior high school to middle school. During the 1986-87 school year, interdisciplinary teaming (treatment 2) was introduced as the organizational structure of the school. Previous to that year, departmentalization (treatment 1) was utilized. For the 1987-88 school year, treatment 2, interdisciplinary teaming, remained in place and homebase (affective education) was initiated. The combination of interdisciplinary teaming and homebase constituted treatment 3. During the 1988-89 school year, treatment 3 remained in place and treatment 4, the combination of interdisciplinary teaming, homebase, and increased use of interdisciplinary units of instruction, characterized the school.

The following general procedures were applied to the data for the major question of this study. A one-way analysis of variance was used to test for

significant differences between the means. The Duncan post hoc procedure was applied to determine the differences among the means. A two-way analysis of variance was used to test for interaction and main effects.

The data for the secondary question of this study, which related to student attitudes as measured by the Minnesota School Attitude Survey, were collected from the seventh graders at North Middle School in Great Falls, Montana; Washington School in Miles City, Montana; and Cut Bank Middle School in Cut Bank, Montana. From these populations, a sample of 32% of the total seventh grade population was taken. The combined number of surveys included 90 from Great Falls, 51 from Miles City, and 29 from Cut Bank. The total seventh grade populations from each school were 318, 144, and 70, respectively.

A random computer selection of a sample population for each school was completed. Sampling a population for statistical analysis is an acceptable procedure. According to Ferguson (1981, p. 10), "Statistical procedures used for the drawing of inferences about the properties from sample data are frequently referred to as inferential statistics."

The Minnesota School Attitude Survey was administered to the seventh graders from the three schools. The surveys were given during homebases in Miles City and Great Falls, and during a period specifically set aside for the survey in Cut Bank. Miles City and Cut Bank were departmentalized junior high schools; however, Miles City did incorporate a homebase period each day. Great Falls offered a middle school approach utilizing interdisciplinary teaming,

homebase, and interdisciplinary units of instruction. Students were given the same instructions in each school. This 94-question survey differentiated data by separating different questions into 21 clusters. These clusters measured attitudes in academics, fine arts, learning activities, personal development, school climate, and self-concept. The questions for each cluster are presented in Appendix A.

Each of these clusters was analyzed by the use of a one-way analysis of variance. A Likert-type scale was used to place a value on each student response. Each cluster was compared to each location, Great Falls, Miles City, and Cut Bank. When differences were noted, a Duncan post hoc procedure was used to determine where the differences occurred.

Data for the third problem of this study were gathered through administration of the Rutgers Secondary School Climate Inventory--Final Form (RSSCI-FF) (Mulhern, 1984) and the Pupil Control Ideology Form (PCI). These surveys were first administered to the teachers at North Junior High School in 1986 as part of a climate study conducted by Dr. Donald Robson of Montana State University. The RSSCI-FF and the PCI were again administered in 1990 to the 22 teachers still at North Middle School who participated in the 1986 study. The scores from the 1986 study were plotted on a scattergram, as were the scores of the present study. A Likert-type scale was used to place values on the responses. Comparisons and differences were then determined.

### Limitations of the Study

- (1) The population of seventh graders from North Middle School in Great Falls, Montana, from the years of 1985-1989, comprised the sample for the achievement data for this study.
- (2) The independent variables of junior high school, interdisciplinary teaming, homebase (affective education), interdisciplinary units of instruction, at-risk students, tutorial students, PACE students, and non-program students were considered for the major problem in this study.
- (3) Only seventh graders in Great Falls, Miles City, and Cut Bank, Montana were considered in the secondary problem of this study.
- (4) Only the staff who had been at North Middle School for the last consecutive five years and who participated in the climate study conducted in 1986 were considered in the third problem of this study.
- (5) Dependent variables of ITBS composite scores in language skills, reading skills, work-study skills, and mathematics skills were considered in the major question of this study.

## CHAPTER 2

### REVIEW OF LITERATURE

#### Introduction

For the purpose of this review of literature, the development of the middle school will be discussed, including a review of the literature of interdisciplinary teaming, homebase or advisor/advisee programs (affective education), and the use of interdisciplinary units of instruction as they relate to students and teachers.

This review begins with an historical approach; the time frame stretches from 1888 until 1990, with the majority of information cited being between 1950 and 1990. While information was gathered from numerous sources such as periodicals, textbooks, professional papers, and research projects, a consistent source of this information was derived from ERIC searches. Descriptors such as humanistic education, middle schools, junior high schools, integrated activities, integrated curriculum, teaching methods, instructional innovation, instructional development, and humanization were used.

### Background of Middle School Development

The middle school movement has been one of the largest and most comprehensive efforts at educational reorganization in the history of American education (George & Oldaker, 1985/86). Transition from the traditional junior high school pattern to the middle school concept has occurred frequently across the nation. The first middle school opened in 1950. Since that time, thousands of middle schools have been established (Soares, 1973).

It was assumed by Brimm (1969) that the reason for the massive move to middle school was the perceived shortcomings or failures of the junior high school. It was interesting to note that the major goals of the middle school organization were very similar to what we expected of the junior high schools. In 1918, the Commission on the Reorganization of Secondary Education of NEA suggested several guidelines for a new organizational pattern for education. The commission suggested that this new organization should contain sixth, seventh, and eighth graders. It was also suggested that an environment which allowed for exploration and interests should influence the school to better meet all the needs of the students and to prevent adolescent dropouts, which occurred at the rate of 90% (Grossnickle, 1986).

During the early 1900s, researchers began to investigate the physical and emotional characteristics of the 12 to 15 year-old child. The difficulties of puberty were noted and suggestions were made that supported a new type

of school for these students (C.O. Davis, 1924). In addition to Davis' research, Gruhn and Douglass (1956) and Lounsbury (1962) have also studied pre-adolescents and their special needs. Brimm (1969), C.O. Davis (1924), and Popper (1967) indicated that early investigations and questions concerning seventh and eighth grade students led to the development of the first junior high school in 1895.

Exploratory coursework and elective opportunities, as well as the newly recognized need for addressing the physical, emotional, and cognitive aspects of the pre- and young adolescents, contributed to the development of the junior high school. There was a 55-year span from the opening of the first junior high school in 1895 to the opening of the first middle school in 1950. The reasons for opening these two types of schools seemed very similar (Hench, 1967).

While the goals and objectives were alike, the techniques and instructional organization of the middle school differed greatly from that of the junior high school. Researchers were aware of the emotional, physical, social, and cognitive needs of students at the middle level. Organizing teachers into interdisciplinary teams and providing classroom-based guidance efforts were essential for the success of the middle school and, consequently, for meeting the needs of all the students. There was evidence to suggest that such program components were finding their way into more and more

middle schools regardless of the classification of the school or the grade levels included (Alexander & George, 1981).

### Interdisciplinary Teaming

As defined earlier, interdisciplinary teaming is an organizational arrangement which puts a group of teachers together with the same group of students for instruction in more than one subject area. This concept has been suggested as essential to the success of a middle school. McEwin and Clay (1983) reported evidence that the interdisciplinary team organization was the best method for grouping teachers and students on a schoolwide basis in the middle and junior high schools.

The organization of the faculty for instruction is a necessary and basic task of all schools. The interdisciplinary organization of teachers is both the most distinguishing feature of the middle school and a keystone of its structure. When the team is in place, the other components of the school program tend to function more smoothly (Alexander & George, 1981). One aim of the interdisciplinary team is to promote communication, coordination, and cooperation among subject matter specialists. Research suggests that students benefit from instruction planned by these teaming specialists as opposed to the fragmentation which characterizes departmentalized plans (Wiles & Bondi, 1981).

The organization of the middle school was designed to facilitate a smooth transition from the self-contained elementary classroom to the

departmentalization of the high school. The grouping of teachers and students into teams is an effective arrangement for meeting this goal.

The essence of the team organization is cooperation and sharing. The teachers on the team share the same students, the same schedule, and are provided ample common planning time. It was important to distinguish between interdisciplinary teaming and team teaching. Teachers involved with interdisciplinary teaming might or might not team teach. Teaming is a philosophy for utilizing and assigning teachers and students. It is not a teaching method. Team teaching could occur whenever two or more teachers work together on a particular lesson. Other than this period, these teachers would not see the same students again. Researchers have reported that regardless of the school setting in which the team was found, numerous advantages have resulted. The opportunity for closer and more pertinent parent contact developed as did the opportunity for a successful structuring of advisory groups (Wayson et al., 1982). Because of the consistency of classroom rules that exist with a team, discipline problems generally have been less severe and less frequent. The interdisciplinary team organization appears to be far more complex and considerably more versatile than educators once believed. It also appears to be an effective and durable innovation (George, 1982).

There were many issues to consider before suggesting that a school was effective. The majority of research related school programs to student

achievement. However, the middle school philosophy took into account the other areas of needs that existed for a student to achieve at an acceptable rate. The interdisciplinary team was designed for across-the-curriculum activities. These activities, whether academic or extracurricular, have improved interpersonal relationships and enhanced overall school morale. Many important decision making skills have been practiced, especially when the students actively participated in designing the activity. Numerous decisions are required for the coordination of an interdisciplinary unit, and application of information is essential to the learning process. Vars (1987) noted that when students were involved in reinforcement of the skills from a math class to complete a science project, they retained more of these skills.

Research indicated that an interdisciplinary unit or activity that was undertaken by a team of several teachers was the most common type of arrangement for multi-curricular work. Usually the team consisted of an English teacher, math teacher, science teacher, and social studies teacher. When housed in nearby classrooms and assigned a block of time for planning and instruction, these teams functioned like a school-within-a-school (Alexander & George, 1981; Merenbloom, 1986).

The primary emphasis of the interdisciplinary team was to address all the needs of the students and to increase achievement. To help ensure student achievement, additional emphasis was placed on creating a healthy family atmosphere in which students were encouraged to belong and develop

attachments to the other team members, students, and teachers. Effective middle level schools worked hard to reduce the size of the group to which students belonged (Doda et al., 1987). According to Bergmann and Baxter (1983), pupils need structure in their interpersonal lives in school as well as in their academic program. Large schools were organized so that they were able to continue to offer their exciting programs most effectively, but in a framework that permitted students to restrict their interactions to a manageable number. The interdisciplinary team organization permitted and encouraged students and teachers to develop a sense of security or a feeling that a particular area of the school was solely theirs. Personal space is important to students whose lives are often disorganized in other ways. This has proven especially true of the at-risk student. A place to begin and end each day is an important outcome of team organization.

In a recent study of exemplary middle level schools, 90% of the schools reported that they organized teachers and students into interdisciplinary teams rather than self-contained and departmentalized instruction units (George & Stevenson, 1989). It was recommended that the school day should be organized around interdisciplinary teamed teachers teaching the core curriculum, which would keep students together for part of the day. These studies indicated that this type of staffing pattern produced several advantages:

- (1) Team teaching permitted team members to take advantage of individual teacher strengths in planning for instruction and in working with learners.
- (2) Team teaching spurred creativity because teachers knew they must teach for their colleagues as well as for their learners.
- (3) Team teaching facilitated individualized instruction because it was possible to provide learning environments involving close personal contact between teacher and learner.
- (4) Team teaching provided for better sequencing and pacing of increments of instruction because perceptions of an individual teacher had to be verified by at least one other team member.
- (5) Team teaching built program continuity over time.

There are numerous benefits in organizing a middle level school with interdisciplinary teaming. However, there are important factors to consider in the organization of the teams to ensure their success. George and Stevenson (1989) made several observations based on a study of 154 of the nation's best middle schools. They reported that a common planning time was essential for the construction of interdisciplinary units, discipline strategies, activities, and a host of other functions relegated to the team. In addition to a common team planning time, teachers also had an individual planning time. Researchers indicated that approximately 85% of the teams studied included an official team leader who had specific responsibilities for the team's operation.

Dominant in reports of academic success were the accounts of expectations that were reasonable for students. These goals were followed by descriptions of programs that provided support for the whole child. The best teams were willing to expend whatever effort was necessary to help students when they needed assistance.

Another problem that was addressed was the teachers' reaction to teaming. Bryan and Erickson (1970) indicated slight differences in middle school and junior high school teacher attitudes toward the organizational structure, teaming versus departmentalization. Gatewood (1970) concluded that the implementation of middle school concepts existed more in the ideal than in reality. It seemed that teaming made little difference in teacher attitudes toward administration, students, or their colleagues. However, Glissmeyer (1969) conducted a study in California comparing programs in elementary schools and middle schools. The middle school teachers exhibited a more positive attitude toward their program than elementary teachers. Howell (1969) studied a school in Iowa that had converted from a junior high school to a middle school. He indicated an overall improvement in teacher attitude. A more recent study from Johns Hopkins University conducted by McPartland (1987) suggested that more positive effects on teacher-student relationships existed with the middle school concept. Another study conducted by Doda et al. (1987) suggested that effective middle level schools fostered teacher fellowship, interdependence, and staff consensus.

Increased student achievement is the ultimate goal of middle schools. To realize this goal, the physical, social, emotional, and intellectual needs of the students have to be met. Whenever close communication concerning students' personal development as well as their academic growth is at stake, this organizational scheme of interdisciplinary teaming appears to make excellent sense (George & Stevenson, 1989).

### Affective Education

Every transescent in middle level schools has intellectual, physical, social, and emotional needs pertinent to his/her developmental stage. If these needs are adequately addressed, they become potential foundations for learning. The degree to which this potential is developed depends a great deal on the purposes and focus of the school programs. The review of literature determined that the majority of schools studied had well defined academic programs that functioned for the purpose of developing intellectual growth. Nearly all middle level schools had physical education programs that were designed to meet the physical needs of their students. These programs generally offered various arrangements of structured physical skill activities such as intramural programs, physical education classes and, in many cases, interscholastic athletics. To a lesser degree, but still common in middle level schools, a social agenda was part of the program. School activities such as dances, team functions, assemblies, and clubs characterized this effort. This was an

essential component of a successful middle school. All pre- and young adolescents entered the school with a myriad of social concerns. These concerns were guided in a positive direction by a well-defined and structured program with activities designed for the transescent (Romano et al., 1973).

While most school philosophies contained statements that addressed the social and emotional needs of students, far too few schools spent the time and energy necessary to develop an affective education program. There were, however, an increasing number of middle schools that were realizing the importance of such a program and developed specific curricula to address these needs. The term "self-concept" was most often associated with affective programs.

The relationship between self-concept and achievement has been clearly identified by research (Addo, 1985). Since 1960, there have been numbers of researchers who have correlated self-concept and achievement. Noar (1961) and Mikalachki (1973) concluded that cognitive learning could not take place in a state of affective disorder. It was further stated that the family or some other institution could no longer be counted on to take the responsibility for the student's total affective development and that it was imperative that school systems devote time, energy, and financial resources to the production of programs for affective learning.

Improving students' achievement test scores, time on task, teacher accountability, the work-study skills of students, and the role of the principal

in effective schooling were common themes in research. According to Miller (1976), they were worthy of study; however, no learning situation or teaching process was without its inseparable affective attributes. As a result, each of these themes was incomplete without addressing the affective needs of the students. Epstein (1980) and Toepfer (1986) reported that 30% of the successful students in grades K-5 began failing school when they reached the junior high school. Toepfer (1986, p. 27) termed this phenomenon "learner turn-off syndrome." These students were labeled at-risk. They were characterized by poor academics, behavior problems, and as having difficulties getting along with their peers. While not all of these students came from lower socioeconomic backgrounds, a disproportionate number did (Ekstrom et al., 1986; Rumberger, 1983). If one reflects on the statistics compiled by Stefanich (1986, p. 7) concerning middle schoolers and the conditions in which they lived, the importance of affective education becomes immediately apparent:

- (1) The divorce rate is approaching 50%.
- (2) Forty-three percent of those arrested for serious crimes in the U.S. are juveniles, and youth crime is increasing by 10% each year.
- (3) Alcoholism among teenagers increased 800% between 1970 and 1980.
- (4) Four out of ten girls will become pregnant during the teenage years; two of ten will have a child; and 96% of teenage mothers keep the child.
- (5) One-third of all abortions are given to teens.
- (6) The second leading cause of death among teenagers, after accidents, is suicide.

Beane (1985/86), Elkin (1984), Erikson (1968), Kohlberg and Turiel (1971), Thornburg (1974), and others supported the need and stressed the importance of affective education for emotional development of transescents. For instance, Beane (1985/86) suggested that without an emphasis on self-concept, a student's success in the overall school curriculum was jeopardized. Addo (1985) and George and Oldaker (1985/86) concluded that there was no doubt that self-concept was directly related to achievement. In their study of 130 middle schools, 62% of the respondents described consistent academic improvement when an affective education program was in place. Most school programs have put guidance into practice, but until the middle school movement, with its advisor/advisee or homebase programs, relatively little was done to address affective education or self-concept.

The most common approach for the affective program in the middle school is the homebase or advisor/advisee (AA) structure. This arrangement allows for a group of 15 to 20 students to identify with one particular teacher who serves as their advocate. The middle level child has needs that are unique to his or her stage of life. It is important at this stage for the child to develop "significant other" adult relationships. In the AA concept, the advisor is the best adult school friend (Bergmann & Baxter, 1983). Studies suggest that most teachers at the middle level have done more guiding and advising than they realize. They may well have been the most consistent adults in some of these students' lives. James (1986) suggested that daily advisory

periods are conducive to the close teacher-student relationships envisioned by AA programs. The Phi Delta Kappan Commission on Discipline, in its Handbook for Developing Schools with Good Discipline (Wayson et al., 1982), recommended advisor/advisee programs. The Commission concluded that schools should find a way to deal with the personal problems that affect life within the school. The teacher advisory program is a much needed program in the middle school.

Johnston and Markle (1986) concluded that attitude formation and change are possible in schools because most behaviors are learned. Students are not born disliking school or particular subject areas. They learn these behaviors. They are not born with positive or negative self-concepts. These attitudes are learned through their environment. The researchers concluded that while some attitudes are well established by the time a student begins school, teachers are still able to change unacceptable behaviors and attitudes to those that are more positive. Teachers have a profound effect on students' perceptions and influence student attitudes through classical conditioning and modeling. The average student spends more time with teachers and school programs than he or she does at home with parents. An advisor/advisee program which deals with the many dilemmas faced by the middle school child seems valuable. The fundamental purpose of the advisor/advisee program, regardless of its design in any particular school, is to promote involvement between a teacher and the students participating in the advisory group. Every

student needs to have a relationship with at least one adult in the school which is characterized by warmth, concern, openness, and understanding. Such a program focuses on what has been called the "fourth R," relationships: interpersonal relationships which produce growth for all people involved (Alexander & George, 1981).

The advisor/advisee program in the middle school has helped bridge the gap between the close, one-to-one structure of the elementary school with its self-contained setting and the departmentalized format of the high school. It offers middle school students the best of both worlds. It provides every student with an advisor, a teacher who has special concern for the student as an individual. Additionally, the program provides instruction which encourages independence and personal growth needed at the high school level (Alexander & George, 1981).

## CHAPTER 3

### PROCEDURES

#### Introduction

The major problem addressed by this study was to determine if there was a statistically significant difference in seventh grade students' scores on the Iowa Tests of Basic Skills (aggregate scores in reading, language skills, work-study skills, or mathematics) when treatment types and student types were compared.

The second problem of this study was to determine if there were significant differences in student attitudes, as measured by the Minnesota School Attitude Survey, when a junior high school was compared to a middle school.

The third problem of this study was to determine if there were differences in teacher and principal perceptions of school climate when comparing a junior high school and a middle school.

The procedures used to collect, organize, and analyze data were as follows: (1) population description and sampling procedures, (2) methods of data collection, (3) organization of data, and (4) statistical hypotheses.

### Population Description and Sampling Procedures

The setting for the major problem of this study was North Middle School, currently one of three middle schools in Great Falls, Montana. During the years of this study, 1985-1989, the district served over 12,000 students per year. North Middle School enrolled 410 seventh graders in the 1985-86 school year, 405 in 1986-87, 406 in 1987-88, and 440 in 1988-89, for a total population of 1,661 seventh graders. Currently, Great Falls serves its students through fifteen elementary schools, three middle schools, and two high schools. The expenditures per pupil for this community were within \$500 of the national average for public schools for the period of this study (U.S. Department of Education, 1988).

The population for the major question of this study was limited to seventh grade students who had attended North Junior High School or North Middle School between 1985 and 1989 and who had taken the Iowa Tests of Basic Skills. During those years, the Great Falls School District piloted the development of a middle school. The first year, 1985-86, ninth graders were moved to the high school, West Junior High School was closed, and the remaining junior high schools began a seventh and eighth grade organizational pattern. The sample for this study began with the 1985-86 seventh graders.

The seventh grade students were studied over a period of four school years. The achievement test data, specifically the aggregate scores of

reading, language skills, work-study skills, and mathematics, served as the dependent variables. Student types served as one set of independent variables for the major problem of this study. For each year of the study, the seventh graders were identified and analyzed as four distinct types: at-risk (type 1), tutorial (type 2), non-program (type 3), and PACE (type 4).

During the four years of transition from junior high school (treatment 1) to middle school, different treatments were applied to the seventh grade students. These treatments became part of the evolving process for the middle school, and are identified as follows: interdisciplinary teaming (treatment 2); interdisciplinary teaming and homebase/affective education (treatment 3); and interdisciplinary teaming, homebase, and the use of interdisciplinary units of instruction (treatment 4). The first year of the study, 1985-86, treatment 1 was in place. North was at that time a junior high school. The 1986-87 school year began with the introduction of treatment 2 in the seventh grade. During the 1987-88 school year, treatment 3 was established for the seventh grade students, and 1988-89 was characterized by the programs of treatment 4. These treatments served as another set of independent variables for this study. Since the focus of the major problem of this study was to determine if there were statistically significant differences in seventh grade student scores on the ITBS as the organization and philosophy of the school changed from junior high school to middle school, interdisciplinary teaming, homebase, and interdisciplinary units of instruction

seemed to be appropriate independent variables. Researchers Alexander and McEwin (1989), George (1988), George and Stevenson (1989), and Putbrese (1989) indicated that these were essential characteristics for the success of a middle school.

The second problem of this study concerned student attitudes. The Minnesota School Attitude Survey (MSAS) was the measuring instrument. (The MSAS instrument is found in Appendix A.) It was administered to the population of seventh graders at North Middle School in Great Falls, Montana (location 1), Cut Bank Middle School in Cut Bank, Montana (location 2), and Washington School in Miles City, Montana (location 3).

Cut Bank is a district of 590 students and 60 teachers. It is located in the extreme northern part of Montana on the eastern side of the Rocky Mountains, just 30 miles from the Canadian border. The seventh graders in Cut Bank attended a junior high school. Miles City contains one middle level school which enrolled approximately 150 seventh graders and 150 eighth graders. It is a community of 10,000 residents in southeastern Montana and has an estimated 2,000 students and 140 teachers. The seventh graders in Miles City attend a junior high school. However, although departmentalization characterized the school organization, a homebase program was in place.

A representative sample from each school, as explained in Chapter 1, was selected and used for data analysis. The MSAS had a two-part design with a total of 94 questions. Part one consisted of 54 questions, each

requiring two student responses. One response dealt with importance and the other with pleasantness. Each question was scored on a Likert-type scale ranging from one to five, with important and pleasant scored as one and unimportant and unpleasant scored as five. Part two of the test contained 40 true/false questions on a four-point Likert-type scale. True was scored as one and false scored as four. The MSAS was arranged into 21 clusters, each measuring a different focus or attitude. (The MSAS cluster arrangement is found in Appendix A.)

Science Research Associates reported the validity of the MSAS using responses, constructs, and relevance. The responses were tested using follow-up interviews. The results showed that all respondents understood the questions and gave a response which had internal logic. Groups of students were asked to attend to three tasks to test constructs: (1) sort items into any categories, (2) sort items into given categories, and (3) make up category names for given sets of items. Teachers were asked to support, endorse, edit, and delete items.

The test-retest reliability was tested using three time periods: (1) two weeks, (2) two months, and (3) after six or seven months. The reliability for groups was high, with item correlations for grade-level averages rarely below .8, and usually above .9. The internal consistency index was measured by the Cronbach alpha coefficient.

The third problem of this study dealt with teacher and principal perceptions of school climate as they related to junior high school and middle school. Data for this analysis were collected by administering two climate surveys: the Pupil Control Ideology (PCI) and the Rutgers Secondary School Climate Inventory-Final Form (RSSCI-FF) to the 25 teachers and the principal who had been at North Middle School since 1986. Of the 25 teachers given the surveys, 22 completed and returned them, for an 88% return rate. (Both surveys are found in Appendix B.)

Validity and reliability for these instruments were produced by Mulhern (1984). The RSSCI-FF contains 33 items which contain five subtests (Appendix B). The five subtests are as follows: (1) principal support behavior, (2) principal control behavior (scored negatively), (3) teacher engagement behavior, (4) teacher frustration behavior (scored negatively), and (5) teacher intimacy behavior.

The PCI was a 20-item instrument designed by Willower, Eidell, and Hoy (Mulhern, 1984). Reliability was determined by the use of the Spearman-Brown formula, and coefficients ranged from .91 to .95.

#### Methods of Data Collection

Students in the Great Falls School District were administered the Iowa Tests of Basic Skills each school year. These tests were used for various reasons, including placement in special programs such as special education,

Chapter One, and reading and math laboratories. In addition to the administration of the tests, the district obtained reports on the results of the tests for each student, for each school, and for the district. Information was received in the form of complete composites and basic composites. The complete composite score was a useful indication of overall achievement level.

The primary question of this study was concerned with the 1,661 seventh grade students attending North Middle School from the 1985-86 through the 1988-89 school years who had taken the Iowa Tests of Basic Skills. Aggregate scores in language skills, reading skills, work-study skills, and mathematics skills served as the dependent variables for this part of the project.

The data used in the major problem of this study were obtained from various sources: district reports, school reports, and individual student records.

The data for the second problem of this study were collected from responses on the MSAS. This survey was administered to locations 1, 2, and 3. In locations 1 and 3, homebase teachers explained the survey to students and used the MSAS as a homebase activity. In location 2, a time was set aside during the day for the administration of the survey. Teachers gave instructions and supervised participation.

The data for the third problem of this study were collected from the administration of the PCI and the RSSCI-FF. The participants were assured of anonymity.

The superintendent of the Great Falls Public Schools was informed of this study by letter from this researcher and granted permission for the collection and use of the necessary data. He was assured that all personal data collected would be confidential and would be used only in grouped statistics by the researcher. The following data were collected for this study:

- (1) Overall battery scores on the ITBS for language skills, reading skills, work-study skills, and mathematics skills for all seventh graders who attended North Middle School during the 1985-86, 1986-87, 1987-88, or 1988-89 school years.
- (2) The identities of the seventh grade students at North Middle School who qualified for free lunch during the four years researched in this study.
- (3) The identities of the seventh grade students at North Middle School who were involved in the gifted and talented academic program during the four years of this study.
- (4) The identities of the seventh grade students at North Middle School who received services from the reading laboratory tutorial program during the four years of this study.
- (5) The identities of the teachers who took part in a climate study conducted by Dr. Donald Robson during the 1986-87 school year.

### Organization of Data

The design for the major problem of this study involved four two-way analysis of variance procedures to determine significant interaction between the independent variables of treatment type and student type and the dependent variables of ITBS scores. Hypotheses 1, 2, 3, and 4 were tested with a two-way analysis of variance. A table of means and an ANOVA table were developed for each hypothesis. Ferguson (1981) indicated that ANOVA was an acceptable method of simultaneous investigation of experimental variables. Additionally, 16 one-way analysis of variance procedures were utilized to test Hypotheses 5 through 20 as a method of analysis for significant differences between the means of the dependent variables in relation to the independent variables. When significance was determined, a Duncan post hoc procedure was used to identify where the differences occurred.

The second problem of this study was concerned with the analysis of student attitudes as they related to junior high school and middle school. The MSAS was administered to the seventh graders in three schools. Two were junior high schools, i.e., those in Cut Bank (location 2) and Miles City (location 3); the remaining location, Great Falls (location 1) was a middle school which utilized treatment 4. The MSAS instrument was designed by clusters, as explained in Chapter 1. Each cluster measured a different attitude. These attitudes were the dependent variables and the locations

were the independent variables. Each cluster was tested with each location using a one-way analysis of variance. Significant F scores were examined with a Duncan post hoc procedure to identify where the differences occurred.

The third problem of this study involved teacher attitudes about school climate as they related to junior high school and middle school. Two survey instruments, the PCI and the RSSCI-FF, which contained five clusters, were administered to the teachers at North Middle School. These same instruments were completed by the same teachers in 1986 as part of a study conducted by Dr. Donald Robson. The scores from this 1990 study were analyzed in the same manner as the scores from 1986. The results were plotted on a scattergram. The purpose of this procedure was not to identify all the individual differences and significance, but to get a general idea of the present climate perceptions of the teachers working in a middle school as they related to the climate perceptions of 1986 when the same teachers worked in a junior high school.

### Statistical Hypotheses

The following null hypotheses were tested at the .05 level of significance. Ferguson (1981) stated that it is a common convention to accept levels of significance of either .05 or .01. The choice of the level of significance was determined by the consequences of making a Type I or a Type II error. A Type I error results from rejecting a true null hypothesis, and a Type II error

occurs when a false null hypothesis is retained. The occurrence of a Type II error in this study might slow the development of additional middle school interventions or strategies planned for the future. A Type I error may cause accelerated development of middle school interventions and strategies at the expense of other more educationally sound programs.

School districts are concerned with improving the educational opportunities for their students. The .05 level of significance was selected for this study as a compromise between the .01 level of significance and the .1 level of significance. At the .05 level, the researcher exercised caution concerning the possibility that funds would be spent on a philosophy and organizational arrangement that did not relate to increased student achievement. Conversely, the .05 level of significance was high enough to prevent a school district from rejecting a worthwhile project.

Listed below are the 22 hypotheses that were tested for this study.

#### Hypotheses Related to Major Problem

- (1) Ho: There is no interaction between treatment type and student type on the ITBS scores in reading achievement.  
Hi: There is interaction between treatment type and student type on the ITBS scores in reading achievement.
- (2) Ho: There is no interaction between treatment type and student type on the ITBS scores in language skills achievement.

**Hi:** There is interaction between treatment type and student type on the ITBS scores in language skills achievement.

**(3) Ho:** There is no interaction between treatment type and student type on the ITBS scores in work-study skills.

**Hi:** There is interaction between treatment type and student type on the ITBS scores in work-study skills.

**(4) Ho:** There is no interaction between treatment type and student type on the ITBS scores in mathematics achievement.

**Hi:** There is interaction between treatment type and student type on the ITBS scores in mathematics achievement.

**(5) Ho:** There is no significant difference in the ITBS language skills achievement scores among treatment groups for non-program students.

**Hi:** There is significant difference in the ITBS language skills achievement scores among treatment groups for non-program students.

**(6) Ho:** There is no significant difference in the ITBS reading achievement scores among treatment groups for non-program students.

**Hi:** There is significant difference in the ITBS reading achievement scores among treatment groups for non-program students.

**(7) Ho:** There is no significant difference in the ITBS work-study skills achievement scores among treatment groups for non-program students.

- Hi: There is significant difference in the ITBS work-study skills achievement scores among treatment groups for non-program students.
- (8) Ho: There is no significant difference in the ITBS mathematics achievement scores among treatment groups for non-program students.
- Hi: There is significant difference in the ITBS mathematics achievement scores among treatment groups for non-program students.
- (9) Ho: There is no significant difference in the ITBS language skills achievement scores among treatment groups for at-risk students.
- Hi: There is significant difference in the ITBS language skills achievement scores among treatment groups for at-risk students.
- (10) Ho: There is no significant difference in the ITBS reading achievement scores among treatment groups for at-risk students.
- Hi: There is significant difference in the ITBS reading achievement scores among treatment groups for at-risk students.
- (11) Ho: There is no significant difference in the ITBS work-study skills achievement scores among treatment groups for at-risk students.
- Hi: There is significant difference in the ITBS work-study skills achievement scores among treatment groups for at-risk students.
- (12) Ho: There is no significant difference in the ITBS mathematics achievement scores among treatment groups for at-risk students.
- Hi: There is significant difference in the ITBS mathematics achievement scores among treatment groups for at-risk students.

- (13) Ho: There is no significant difference in the ITBS language skills achievement scores among treatment groups for tutorial students.
- Hi: There is significant difference in the ITBS language skills achievement scores among treatment groups for tutorial students.
- (14) Ho: There is no significant difference in the ITBS reading achievement scores among treatment groups for tutorial students.
- Hi: There is significant difference in the ITBS reading achievement scores among treatment groups for tutorial students.
- (15) Ho: There is no significant difference in the ITBS work-study skills achievement scores among treatment groups for tutorial students.
- Hi: There is significant difference in the ITBS work-study skills achievement scores among treatment groups for tutorial students.
- (16) Ho: There is no significant difference in the ITBS mathematics achievement scores among treatment groups for tutorial students.
- Hi: There is significant difference in the ITBS mathematics achievement scores among treatment groups for tutorial students.
- (17) Ho: There is no significant difference in the ITBS language skills achievement scores among treatment groups for PACE students.
- Hi: There is significant difference in the ITBS language skills achievement scores among treatment groups for PACE students.
- (18) Ho: There is no significant difference in the ITBS reading achievement scores among treatment groups for PACE students.

- Hi: There is significant difference in the ITBS reading achievement scores among treatment groups for PACE students.
- (19) Ho: There is no significant difference in the ITBS work-study skills achievement scores among treatment groups for PACE students.
- Hi: There is significant difference in the ITBS work-study skills achievement scores among treatment groups for PACE students.
- (20) Ho: There is no significant difference in the ITBS mathematics achievement scores among treatment groups for PACE students.
- Hi: There is significant difference in the ITBS mathematics achievement scores among treatment groups for PACE students.

#### Hypotheses Related to Second Problem

- (21) Ho: There are no significant differences between the clusters in part one of the MSAS and the school location (organizational pattern).
- Hi: There are significant differences between the clusters in part one of the MSAS and the school location (organizational pattern).
- (22) Ho: There are no significant differences between the clusters in part two of the MSAS and the school location (organizational pattern).
- Hi: There are significant differences between the clusters in part two of the MSAS and the school location (organizational pattern).

## CHAPTER 4

### ANALYSIS OF DATA

The results of the data analysis used for the major, second, and third problems of this study are contained in this chapter. The test of each hypothesis is presented.

#### Major Problem

The major problem of this study was to determine if there were any statistically significant differences in seventh grade students' scores on the Iowa Tests of Basic Skills in the areas of language skills, reading skills, work-study skills, or mathematics skills when a junior high school program was compared to a middle school which utilized interdisciplinary teaming, homebase activities (affective education), and interdisciplinary units of instruction.

A total of 20 hypotheses were formulated to assist in the study of the major problem. Hypotheses 1, 2, 3, and 4 were tested by the use of a two-way analysis of variance to identify interactions between the independent and dependent variables. Although main effects were significant for the first four hypotheses, there were no significant interactions. Each main effect was individually analyzed through the use of a one-way analysis of variance as the method for testing the significance of Hypotheses 5 through 20. The Duncan post hoc procedure was

applied to test for differences when a significant F was found. The results for each hypothesis are presented and then analyzed separately.

### Hypothesis 1

Hypothesis 1 stated that there is no interaction between treatment type and student type on the ITBS scores in reading achievement. A total of 1,661 cases was processed with no cases incomplete. The data are presented in Tables 1 and 2.

Results of the analysis of variance showed that there were no interactions ( $p > .05$ ) between treatment type, student type, and reading achievement (Table 2). Therefore, Hypothesis 1 was retained. Table 1 shows that although there were no significant interactions, a steady increase in mean scores occurred for all treatment types and all students except treatment type 2 and student types 1 and 3, and treatment type 4 and student type 2.

Table 1. Table of means for mean reading achievement scores according to treatment type and student type.

Treatment Type	Student Type			
	1	2	3	4
1	48.24 (46)	35.44 (43)	63.58 (288)	84.61 (33)
2	47.03 (63)	38.50 (24)	59.39 (288)	88.27 (30)
3	53.08 (52)	42.00 (37)	63.14 (294)	91.83 (23)
4	54.29 (69)	37.78 (37)	64.49 (300)	91.12 (34)

Table 2. ANOVA table of mean reading achievement scores according to treatment type and student type.

Source of Variation	Sum of Squares	DF	Mean Squares	F	Signif. of F
Main Effects	197869.538	6	32978.256	61.985	.000
Treatment type	5721.897	3	1907.299	3.585	.013
Student type	193633.442	3	64544.481	121.316	.000
2-way interactions	2841.494	9	315.722	.593	.803
Treatment x Student	2841.494	9	315.722	.593	.803
Explained	200711.032	15	13380.735	25.150	.000
Residual	875197.582	1645	532.035		
Total	1075908.614	1600	648.138		

### Hypothesis 2

Hypothesis 2 stated that there is no interaction between treatment type and student type on the ITBS scores in language skills achievement. A total of 1,661 cases was processed with no cases incomplete. The data are presented in Tables 3 and 4.

The results of the two-way analysis of variance showed that there were no interactions ( $p > .05$ ) between treatment type, student type, and ITBS scores in language skills achievement (Table 4). Therefore, Hypothesis 2 was retained. Table 3 shows that although there were no significant interactions, a steady increase in scores occurred for all treatment types and student types except for treatment type 2 and student types 1 and 3, and treatment type 4 and student type 2.

Table 3. Table of means for mean language skills achievement scores according to treatment type and student type.

Treatment Type	Student Type			
	1	2	3	4
1	46.91 (46)	31.67 (43)	62.65 (288)	82.85 (33)
2	45.68 (63)	35.63 (24)	57.86 (288)	86.80 (30)
3	51.06 (52)	40.14 (37)	63.44 (294)	87.65 (23)
4	51.16 (69)	33.08 (37)	64.21 (300)	89.47 (34)

Table 4. ANOVA table of mean language skills achievement scores according to treatment type and student type.

Source of Variation	Sum of Squares	DF	Mean Squares	F	Signif. of F
Main Effects	215231.049	6	35871.841	65.204	.000
Treatment type	7750.671	3	2583.557	4.696	.003
Student type	209511.010	3	69837.003	126.943	.000
2-way interactions	3159.842	9	351.094	.638	.765
Treatment x Student	3159.842	9	351.094	.638	.765
Explained	218390.890	15	14559.393	26.465	.000
Residual	904986.593	1645	550.144		
Total	1123377.483	1660	676.733		

### Hypothesis 3

Hypothesis 3 stated that there is no interaction between treatment type and student type on the ITBS scores in work-study skills. A total of 1,661

cases was processed with no cases incomplete. The data are presented in Tables 5 and 6.

Results of the two-way analysis of variance showed that there were no interactions ( $p > .05$ ) between treatment type, student type, and work-study skills (Table 6). Therefore, Hypothesis 3 was retained. Table 5 shows that although there were no significant interactions, increases in scores occurred in all treatment types and student types except treatment type 2 and student types 1 and 3, treatment type 3 and student type 3, and treatment type 4 and student type 2.

Table 5. Table of means for mean work-study skills achievement scores according to treatment type and student type.

Treatment Type	Student Type			
	1	2	3	4
1	49.02 (46)	38.63 (43)	65.63 (288)	86.33 (33)
2	48.05 (63)	40.42 (24)	62.03 (288)	88.97 (30)
3	51.87 (52)	45.92 (37)	64.99 (294)	89.22 (23)
4	55.96 (69)	40.41 (37)	67.10 (300)	94.15 (34)

Table 6. ANOVA table of mean work-study skills achievement scores according to treatment type and student type.

Source of Variation	Sum of Squares	DF	Mean Squares	F	Signif. of F
<b>Main Effects</b>	<b>192985.727</b>	<b>6</b>	<b>32164.288</b>	<b>59.715</b>	<b>.000</b>
Treatment type	5749.876	3	1916.625	3.558	.014
Student type	188423.437	3	62807.812	116.607	.000
<b>2-way interactions</b>	<b>2851.959</b>	<b>9</b>	<b>316.884</b>	<b>.588</b>	<b>.808</b>
Treatment x Student	2851.959	9	316.884	.588	.808
<b>Explained</b>	<b>195837.686</b>	<b>15</b>	<b>13055.846</b>	<b>24.239</b>	<b>.000</b>
Residual	886044.766	1645	538.629		
<b>Total</b>	<b>1081882.452</b>	<b>1660</b>	<b>651.736</b>		

#### Hypothesis 4

Hypothesis 4 stated that there is no interaction between treatment type and student type on the ITBS scores in mathematics achievement. A total of 1,661 cases was processed with no cases incomplete. The data are presented in Tables 7 and 8.

Results of the two-way analysis of variance showed that there were no interactions ( $p > .05$ ) between treatment type, student type, and mathematics achievement. Therefore, Hypothesis 4 was retained. Table 7 shows that although there were no interactions, decreased scores occurred with treatments 2, 3, and 4 and student types 1, 2, and 3. Increases were shown with treatment type 2 and student types 2 and 3. Student type 4 increased scores with all treatments except treatment 3.

Table 7. Table of means for mean mathematics skills achievement scores according to treatment type and student type.

Treatment Type	Student Type			
	1	2	3	4
1	50.10 (46)	31.42 (43)	58.64 (288)	80.82 (33)
2	45.02 (63)	35.67 (24)	59.31 (288)	87.23 (30)
3	42.17 (52)	31.46 (37)	52.86 (294)	85.35 (23)
4	45.20 (69)	30.08 (37)	57.42 (300)	90.68 (34)

Table 8. ANOVA table of mean mathematics skills achievement scores according to treatment type and student type.

Source of Variation	Sum of Squares	DF	Mean Squares	F	Signif. of F
Main Effects	224454.866	6	37409.144	67.846	.000
Treatment type	7111.818	3	2370.606	4.299	.005
Student type	214974.269	3	71658.090	129.961	.000
2-way Interactions	4069.520	9	452.058	.820	.598
Treatment x Student	4069.520	9	452.058	.820	.598
Explained	228523.386	15	15234.892	27.630	.000
Residual	907022.681	1645	551.382		
Total	1135546.067	1660	684.064		

### Hypothesis 5

Hypothesis 5 stated that there is no significant difference in the ITBS language skills achievement scores among treatment groups for non-program

students. A total of 1,170 cases was processed with no cases incomplete. The data are presented in Tables 9 through 11.

Results of the analysis of variance showed that there was a significant difference ( $p < .05$ ) among treatment groups for non-program students (Table 10). Therefore, Hypothesis 5 was rejected. The Duncan post hoc procedure was administered at the .05 level as a means of identifying the differences (Table 11). From this procedure, it was determined that treatment types 1, 3, and 4 were significantly different from treatment type 2. Language skills achievement scores were higher for non-program students with treatment types 1, 3, and 4 than with treatment type 2 ( $T_1, T_3, T_4 > T_2$ ).

Table 9. Table of means for non-program students' language skills achievement scores according to treatment types.

Treatment Type	Count	Mean	Standard Deviation
1	288	62.6458	25.3383
2	288	57.8646	25.4512
3	294	63.4388	24.3318
4	300	64.2133	22.5177
Total	1170	62.0701	24.5117

Table 10. ANOVA table of non-program students' mean language skills achievement scores according to treatment types.

Source of Variation	Sum of Squares	DF	Mean Squares	F Ratio	F Prob.
Between groups	7117.9146	3	2372.6382	3.9792	.0078
Within groups	695242.3384	1166	596.2627		
Total	702360.2530	1169			

Table 11. Results of Duncan post hoc procedure for non-program students' mean language skills achievement scores according to treatment types.

Mean	Treatment Type	TREATMENT NUMBER			
		2	1	3	4
57.8646	2				
62.6458	1	*			
63.4388	3	*			
64.2133	4	*			

\*Denotes pairs of treatment types significantly different at the .05 level.

### Hypothesis 6

Hypothesis 6 stated that there is no significant difference in the ITBS reading achievement scores among treatment groups for non-program students. A total of 1,170 cases was processed with no cases incomplete. The data are presented in Tables 12 through 14.

Results of the analysis of variance showed that there was a significant difference ( $p < .05$ ) in reading achievement scores among treatment groups for non-program students (Table 13). Therefore, Hypothesis 6 was rejected.

The Duncan post hoc procedure was administered at the .05 level as a means of identifying the differences (Table 14). From this procedure it was determined that treatments 1 and 4 were significantly different from treatment 2. Reading achievement scores were greater for non-program students with treatment types 1 and 4 than treatment type 2 ( $T_1, T_4 > T_2$ ).

Table 12. Table of means for non-program students' reading achievement scores according to treatment types.

Treatment Type	Count	Mean	Standard Deviation
1	288	63.5799	24.0900
2	288	59.3854	24.0028
3	294	63.1361	24.7844
4	300	64.4933	21.6312
Total	1170	62.6701	23.6924

Table 13. ANOVA table of non-program students' mean reading skills achievement scores according to treatment types.

Source of Variation	Sum of Squares	DF	Mean Squares	F Ratio	F Prob.
Between groups	4406.7266	3	1468.9089	2.6278	.0490
Within groups	651789.9264	1166	558.9965		
Total	656196.6530	1169			

Table 14. Results of Duncan post hoc procedure for non-program students' mean reading skills achievement scores according to treatment types.

Mean	Treatment Type	TREATMENT NUMBER			
		2	3	1	4
59.3854	2				
63.1361	3				
63.5799	1	*			
64.4933	4	*			

\*Denotes pairs of treatment types significantly different at the .05 level.

### Hypothesis 7

Hypothesis 7 stated that there is no significant difference in the ITBS work-study skills achievement scores among treatment groups for non-program students. There were 1,170 cases processed with no cases being incomplete. The data are presented in Table 15.

Results of the analysis of variance showed that there was no significant difference ( $p > .05$ ) in work-study skills among treatment groups for non-program students. Therefore, Hypothesis 7 was retained.

Table 15. ANOVA table of non-program students' mean work-study skills achievement scores according to treatment types.

Source of Variation	Sum of Squares	DF	Mean Squares	F	Signif. of F
Main Effects	3978.978	3	1326.326	2.376	.069
Treatment type	3978.978	3	1326.326	2.376	.069
Explained	3978.978	3	1326.326	2.376	.069
Residual	650983.970	1166	558.305		
Total	654962.948	1169	560.276		

**Hypothesis 8**

Hypothesis 8 stated that there is no significant difference in the ITBS mathematics achievement scores among treatment groups for non-program students. There were 1,170 cases processed with no cases being incomplete. The data are presented in Tables 16 through 18.

Results of the analysis of variance indicated that there was a significant difference ( $p < .05$ ) in mathematics achievement scores between treatment groups and non-program students (Table 17). The Duncan post hoc procedure was administered at the .05 level as a means to identify the differences (Table 18). From this procedure it was determined that treatment types 1, 2, and 4 were significantly different from treatment type 3. Mathematics achievement scores were greater for non-program students with treatments 1, 2, and 4 than with treatment 3 ( $T_1, T_2, T_4 > T_3$ ).

Table 16. Table of means for non-program students' mathematics skills achievement scores according to treatment types.

Treatment Type	Count	Mean	Standard Deviation
1	288	58.6389	23.8722
2	288	59.3090	24.1142
3	294	52.8571	26.5590
4	300	57.4233	23.3298
Total	1170	57.0393	24.5972

Table 17. ANOVA table of non-program students' mean mathematics skills achievement scores according to treatment types.

Source of Variation	Sum of Squares	DF	Mean Squares	F Ratio	F Prob.
Between groups	7407.0138	3	2469.0046	4.1135	.0065
Within groups	699861.1776	1166	600.2240		
Total	707268.1915	1169			

Table 18. Results of Duncan post hoc procedure for non-program students' mathematics skills achievement scores according to treatment types.

Mean	Treatment Type	TREATMENT NUMBER			
		3	4	1	2
52.8571	3				
57.4233	4	*			
58.6389	1	*			
59.3090	2	*			

\*Denotes pairs of treatment types significantly different at the .05 level.

### Hypothesis 9

Hypothesis 9 stated that there is no significant difference in the ITBS language skills achievement scores among treatment groups for at-risk students. There were 230 cases processed with no case being incomplete. The data are presented in Table 19.

Results of the analysis of variance indicated that there was no significant difference ( $p > .05$ ) in ITBS language skills achievement scores among treatment groups for at-risk students. Therefore, Hypothesis 9 was retained.

Table 19. ANOVA table of at-risk students' mean language skills achievement scores according to treatment types.

Source of Variation	Sum of Squares	DF	Mean Squares	F	Signif. of F
Main Effects	1425.185	3	475.062	.765	.515
Treatment type	1425.185	3	475.062	.765	.515
Explained	1425.185	3	475.062	.765	.515
Residual	140313.376	226	620.856		
Total	141738.561	229	618.946		

### Hypothesis 10

Hypothesis 10 stated that there is no significant difference in the ITBS reading achievement scores among treatment groups for at-risk students. There were 230 cases processed with no case being incomplete. The data are presented in Table 20.

Results of the analysis of variance indicated that there was no significant difference ( $p > .05$ ) in reading achievement scores among treatment types for at-risk students. Therefore, Hypothesis 10 was retained.

Table 20. ANOVA table of at-risk students' mean reading skills achievement scores according to treatment types.

Source of Variation	Sum of Squares	DF	Mean Squares	F	Signif. of F
Main Effects	2306.129	3	768.710	1.230	.300
Treatment type	2306.129	3	768.710	1.230	.300
Explained	2306.129	3	768.710	1.230	.300
Residual	141268.201	226	625.081		
Total	143574.330	229	626.962		

Hypothesis 11

Hypothesis 11 stated that there is no significant difference in the ITBS work-study skills achievement scores among treatment groups for at-risk students. There were 230 cases processed with no case being incomplete. The data are presented in Table 21.

Results of the analysis of variance indicated that there was no significant difference ( $p > .05$ ) in work-study skills achievement scores among treatment types for at-risk students. Therefore, Hypothesis 11 was retained.

Table 21. ANOVA table of at-risk students' mean work-study skills achievement scores according to treatment types.

Source of Variation	Sum of Squares	DF	Mean Squares	F	Signif. of F
Main Effects	2410.629	3	803.543	1.196	.312
Treatment type	2410.629	3	803.543	1.196	.312
Explained	2410.629	3	803.543	1.196	.312
Residual	151848.763	226	671.897		
Total	154259.391	229	673.622		

Hypothesis 12

Hypothesis 12 stated that there is no significant difference in the ITBS mathematics skills achievement scores among treatment groups for at-risk students. There were 230 cases processed with no case being incomplete. The data are presented in Table 22.

Results of the analysis of variance indicated that there were no significant differences ( $p > .05$ ) in mathematics achievement scores among treatment types for at-risk students. Therefore, Hypothesis 12 was retained.

Table 22. ANOVA table of at-risk students' mean mathematics skills achievement scores according to treatment types.

Source of Variation	Sum of Squares	DF	Mean Squares	F	Signif. of F
Main Effects	1610.397	3	536.799	.908	.438
Treatment type	1610.397	3	536.799	.908	.438
Explained	1610.397	3	536.799	.908	.438
Residual	133666.825	226	591.446		
Total	135277.222	229	590.730		

### Hypothesis 13

Hypothesis 13 stated that there is no significant difference in the ITBS language skills achievement scores among treatment groups for tutorial students. There were 141 cases processed with no case being incomplete. The data are presented in Table 23.

Results of the analysis of variance indicated that there was no significant difference ( $p > .05$ ) in language skills achievement scores among treatment types for tutorial students. Therefore, Hypothesis 13 was retained.

**Table 23. ANOVA table of tutorial students' mean language skills achievement scores according to treatment types.**

Source of Variation	Sum of Squares	DF	Mean Squares	F	Signif. of F
Main Effects	1596.278	3	532.093	1.433	.236
Treatment type	1596.278	3	532.093	1.433	.236
Explained	1596.278	3	532.093	1.433	.236
Residual	50874.148	137	371.344		
Total	52470.426	140	374.789		

#### Hypothesis 14

Hypothesis 14 stated that there is no significant difference in the ITBS reading skills achievement scores among treatment groups for tutorial students. There were 141 cases processed with no case being incomplete. The data are presented in Table 24.

Results of the analysis of variance indicated that there was no significant difference ( $p > .05$ ) in reading skills achievement scores among treatment types for tutorial students. Therefore, Hypothesis 14 was retained.

**Table 24. ANOVA table of tutorial students' mean reading skills achievement scores according to treatment types.**

Source of Variation	Sum of Squares	DF	Mean Squares	F	Signif. of F
Main Effects	868.614	3	289.538	.604	.613
Treatment type	868.614	3	289.538	.604	.613
Explained	868.614	3	289.538	.604	.613
Residual	65656.875	137	479.247		
Total	66525.489	140	475.182		

**Hypothesis 15**

Hypothesis 15 stated that there is no significant difference in the ITBS work-study skills achievement scores among treatment groups for tutorial students. There were 141 cases processed with no case being incomplete. The data are presented in Table 25.

Results of the analysis of variance indicated that there was no significant difference ( $p > .05$ ) in work-study skills achievement scores among treatment types for tutorial students. Therefore, Hypothesis 15 was retained.

**Table 25. ANOVA table of tutorial students' mean work-study skills achievement scores according to treatment types.**

Source of Variation	Sum of Squares	DF	Mean Squares	F	Signif. of F
Main Effects	1144.714	3	381.571	.730	.536
Treatment type	1144.714	3	381.571	.730	.536
Explained	1144.714	3	381.571	.730	.536
Residual	71565.556	137	522.376		
Total	72710.270	140	519.359		

**Hypothesis 16**

Hypothesis 16 stated that there is no significant difference in the ITBS mathematics skills achievement scores among treatment groups for tutorial students. There were 141 cases processed with no case being incomplete. The data are presented in Table 26.

Results of the analysis of variance indicated that there was no significant difference ( $p > .05$ ) in work-study skills achievement scores among treatment types for tutorial students. Therefore, Hypothesis 16 was retained.

Table 26. ANOVA table of tutorial students' mean mathematics skills achievement scores according to treatment types.

Source of Variation	Sum of Squares	DF	Mean Squares	F	Signif. of F
Main Effects	478.695	3	159.565	.400	.753
Treatment type	478.695	3	159.565	.400	.753
Explained	478.695	3	159.565	.400	.753
Residual	54681.744	137	399.137		
Total	55160.440	140	394.003		

### Hypothesis 17

Hypothesis 17 stated that there is no significant difference in the ITBS language skills achievement scores among treatment groups for PACE students. There were 120 cases processed with no case being incomplete. The data are presented in Table 27.

Results of the analysis of variance indicated that there was no significant difference ( $p > .05$ ) in language skills achievement scores among treatment types for PACE students. Therefore, Hypothesis 17 was retained.

**Table 27. ANOVA table of PACE students' mean language skills achievement scores according to treatment types.**

Source of Variation	Sum of Squares	DF	Mean Squares	F	Signif. of F
Main Effects	771.136	3	257.045	1.607	.192
Treatment type	771.136	3	257.045	1.607	.192
Explained	771.136	3	257.045	1.607	.192
Residual	18556.730	116	159.972		
Total	19327.730	119	162.419		

### Hypothesis 18

Hypothesis 18 stated that there is no significant difference in the ITBS reading skills achievement scores among treatment groups for PACE students. There were 120 cases processed with no case being incomplete. The data are presented in Table 28.

Results of the analysis of variance indicated that there was no significant difference ( $p > .05$ ) in reading skills achievement scores among treatment types for PACE students. Therefore, Hypothesis 18 was retained.

**Table 28. ANOVA table of PACE students' mean reading skills achievement scores according to treatment types.**

Source of Variation	Sum of Squares	DF	Mean Squares	F	Signif. of F
Main Effects	981.921	3	327.307	2.303	.081
Treatment type	981.921	3	327.307	2.303	.081
Explained	981.921	3	327.307	2.303	.081
Residual	16482.579	116	142.091		
Total	17464.500	119	146.761		

**Hypothesis 19**

Hypothesis 19 stated that there is no significant difference in the ITBS work-study skills achievement scores among treatment groups for PACE students. There were 120 cases processed with no case being incomplete. The data are presented in Tables 29 through 31.

Results of the analysis of variance indicated that there was a significant difference ( $p < .05$ ) in work-study skills achievement scores among treatment types for PACE students (Table 30). Therefore, Hypothesis 19 was rejected. The Duncan post hoc procedure was administered at the .05 level as a means of identifying the differences (Table 31). Results of the testing showed that there was a significant difference between treatment type 4 and treatment type 1. Work-study achievement scores were greater for PACE students with treatment 4 than with treatment 1 ( $T_4 > T_1$ ).

**Table 29. Table of means for PACE students' work-study skills achievement scores according to treatment types.**

Treatment Type	Count	Mean	Standard Deviation
1	33	86.3333	15.0700
2	30	88.9667	9.2717
3	23	89.2174	7.0127
4	34	94.1471	4.9365
Total	120	89.7583	10.3364

Table 30. ANOVA table of PACE students' mean work-study skills achievement scores according to treatment types.

Source of Variation	Sum of Squares	DF	Mean Squares	F Ratio	F Prob.
Between groups	1067.5139	3	355.8380	3.5442	.0168
Within groups	11646.4777	116	100.4007		
Total	12713.9917	119			

Table 31. Results of Duncan post hoc procedure for PACE students' work-study skills achievement scores according to treatment types.

Mean	Treatment Type	TREATMENT NUMBER			
		1	2	3	4
86.3333	1				
88.9667	2				
89.2174	3				
94.1471	4	*	*	*	*

\*Denotes pairs of treatment types significantly different at the .05 level.

### Hypothesis 20

Hypothesis 20 stated that there is no significant difference in the ITBS mathematics skills achievement scores among treatment groups for PACE students. There were 120 cases processed with no case being incomplete. The data are presented in Tables 32 through 34.

Results of the analysis of variance indicated that there was a significant difference ( $p < .05$ ) in mathematics skills achievement scores among

treatment types for PACE students (Table 33). Therefore, Hypothesis 20 was rejected. The Duncan post hoc procedure was administered at the .05 level as a means of identifying the differences (Table 34). Results of the testing showed that there was a significant difference between treatment type 4 and treatment type 1. Mathematics achievement scores were higher for PACE students with treatment 4 than with treatment 1 ( $T4 > T1$ ).

Table 32. Table of means for PACE students' mathematics skills achievement scores according to treatment types.

Treatment Type	Count	Mean	Standard Deviation
1	33	80.8182	17.3736
2	30	87.2333	10.6664
3	23	85.3478	13.2686
4	34	90.6765	7.7488
Total	120	86.0833	13.1242

Table 33. ANOVA table of PACE students' mean mathematics skills achievement scores according to treatment types.

Source of Variation	Sum of Squares	DF	Mean Squares	F Ratio	F Prob.
Between groups	1684.2323	3	561.4108	3.4616	.0187
Within groups	18812.9343	116	162.1805		
Total	20497.1667	119			

Table 34. Results of Duncan post hoc procedure for PACE students' mathematics skills achievement scores according to treatment types.

Mean	Treatment Type	TREATMENT NUMBER			
		1	3	2	4
80.8182	1				
85.3478	3				
87.2333	2				
90.6765	4	*	*	*	*

\*Denotes pairs of treatment types significantly different at the .05 level.

### Summary of Major Problem Data Analysis

Hypotheses 1 through 4 were analyzed with a two-way analysis of variance procedure. All four were retained, as no interaction occurred between the independent variables of student type and treatment type and the dependent variables, scores on the ITBS.

Hypotheses 5 through 20 were examined with a one-way analysis of variance. Each student type was individually compared to treatment types for each ITBS score. Most hypotheses were retained.

### Second Problem

The second problem of this study addressed the analysis of student attitudes as they relate to their junior high school or middle school. The MSAS was administered to the seventh graders in three schools. Two of the

schools are junior high schools, those in Miles City and Cut Bank; the third school, in Great Falls, is a middle school utilizing treatments 2, 3, and 4.

The MSAS is designed in two parts. Part one contains 10 clusters, and part two has 11 clusters, each measuring an attitude toward a different segment of the school program. (Additional cluster descriptions are found in Appendix A.) Two hypotheses were formulated to guide the analysis of the responses to the MSAS questionnaire. The results of the tests of the hypotheses are reviewed in this section.

A one-way analysis of variance was used as the method for testing for significant differences for each hypothesis. In clusters where a significant F was found, the Duncan post hoc procedure was used to determine which means differed. A .05 level of significance was used in this analysis. Part one of the MSAS was scored on a five-point scale, with one being the most favorable attitude toward the school and five being the least favorable. The second part of the MSAS was scored on a four-point scale, with one representing the most favorable attitude and four being the least favorable.

The cluster scores were the dependent variables and the three schools, or locations, were the independent variables. Tables of means, ANOVA tables, and graphs of Duncan results are presented for those clusters with a significant F on the one-way analysis of variance.

**Hypothesis 21**

Hypothesis 21 stated that there are no significant differences between the clusters in part one of the MSAS and the school location. Ten clusters were analyzed. The data are presented in Tables 35 through 40.

Results of the analysis of variance showed that there were significant differences ( $p < .05$ ) in clusters and location with cluster 3 (Table 36) and cluster 4 (Table 39). Therefore, Hypothesis 21 was rejected.

A Duncan post hoc procedure was administered at the .05 level as a means of identifying the differences. From this procedure (Table 37) it was determined that for cluster 3 (Fine Arts), Washington School in Miles City (location 3) was significantly different from North Middle School in Great Falls (location 1) ( $L3 > L1$ ). It was also determined (Table 40) that cluster 4 (Learning Activities) at location 2 was significantly different from locations 1 and 3 ( $L2 > L1, L3$ ).

Table 35. Table of means for mean student attitude scores for part one, cluster 3 (Fine Arts) according to location (organizational pattern).

Location	Count	Mean	Standard Deviation
1	90	20.4667	6.9834
2	29	23.2414	8.0519
3	51	25.0980	7.2616
Total	170	22.3294	7.5052

Table 36. ANOVA table of mean student attitude scores for part one, cluster 3 (Fine Arts) according to location (organizational pattern).

Source of Variation	Sum of Squares	DF	Mean Squares	F	Signif. of F
Main Effects	727.333	2	363.666	6.908	.001
Location	727.333	2	363.666	6.908	.001
Explained	727.333	2	363.666	6.908	.001
Residual	8792.220	167	52.648		
Total	9519.553	169	56.329		

Table 37. Results of Duncan post hoc procedure for part one, cluster 3 (Fine Arts) according to location (organizational pattern).

Mean	Location	LOCATION NUMBER		
		1	2	3
20.4667	1			
23.2414	2			
25.0980	3	*		

\*Denotes locations significantly different at the .05 level.

Table 38. Table of means for mean student attitude scores for part one, cluster 4 (Learning Activities) according to location (organizational pattern).

Location	Count	Mean	Standard Deviation
1	90	23.2222	6.6785
2	29	26.5172	6.4066
3	50	21.5200	5.9804
Total	169	23.2840	6.6055

Table 39. ANOVA table of mean student attitude scores for part one, cluster 4 (Learning Activities) according to location (organizational pattern).

Source of Variation	Sum of Squares	DF	Mean Squares	F	Signif. of F
Main Effects	459.090	2	229.545	5.545	.005
Location	459.090	2	229.545	5.545	.005
Explained	459.090	2	229.545	5.545	.005
Residual	6871.277	166	41.393		
Total	7330.367	168	43.633		

Table 40. Results of Duncan post hoc procedure for part one, cluster 4 (Learning Activities) according to location (organizational pattern).

Mean	Location	LOCATION NUMBER		
		3	1	2
21.5200	3			
23.2222	1			
26.5172	2	*	*	

\*Denotes locations significantly different at the .05 level.

### Hypothesis 22

Hypothesis 22 stated that there are no significant differences between the clusters in part two of the MSAS and the school location. Eleven clusters were analyzed. The data are presented in Tables 41 through 46.

Results of the analysis of variance indicated that there was a significant difference ( $p < .05$ ) in clusters and location in part two with cluster

4 (Table 42) and cluster 11 (Table 45). Therefore, Hypothesis 22 was rejected.

A Duncan post hoc procedure was administered at the .05 level as a means of identifying the differences. From this procedure (Table 43) it was determined that for cluster 4 (Fairness), location 2 was significantly different from location 3 ( $L2 > L3$ ). It was also determined (Table 46) that for cluster 11 (Internal Motivation), locations 1 and 2 were significantly different from location 3 ( $L1, L2 > L3$ ).

Table 41. Table of means for mean student attitude scores for part two, cluster 4 (Fairness) according to location (organizational pattern).

Location	Count	Mean	Standard Deviation
1	90	6.0667	2.4162
2	29	6.8621	2.2317
3	51	5.4314	2.3431
Total	170	6.0118	2.3982

Table 42. ANOVA table of mean student attitude scores for part two, cluster 4 (Fairness) according to location (organizational pattern).

Source of Variation	Sum of Squares	DF	Mean Squares	F	Signif. of F
Main Effects	38.418	2	19.209	3.436	.034
Location	38.418	2	19.209	3.436	.034
Explained	38.418	2	19.209	3.436	.034
Residual	933.558	167	5.590		
Total	971.976	169	5.751		

Table 43. Results of Duncan post hoc procedure for part two, cluster 4 (Fairness) according to location (organizational pattern).

Mean	Location	LOCATION NUMBER		
		3	1	2
5.4314	3			
6.0667	1			
6.8621	2	*		

\*Denotes locations significantly different at the .05 level.

Table 44. Table of means for mean student attitude scores for part two, cluster 11 (Internal Motivation) according to location (organizational pattern).

Location	Count	Mean	Standard Deviation
1	90	12.4444	3.8427
2	29	12.8621	3.1592
3	51	10.3529	3.8772
Total	170	11.8882	3.8622

Table 45. ANOVA table of mean student attitude scores for part two, cluster 11 (Internal Motivation) according to location (organizational pattern).

Source of Variation	Sum of Squares	DF	Mean Squares	F	Signif. of F
Main Effects	175.559	2	87.779	6.250	.002
Location	175.559	2	87.779	6.250	.002
Explained	175.559	2	87.779	6.250	.002
Residual	2345.318	167	14.044		
Total	2520.876	169	14.916		

Table 46. Results of Duncan post hoc procedure for part two, cluster 11 (Internal Motivation) according to location (organizational pattern).

Mean	Location	LOCATION NUMBER		
		3	1	2
10.3529	3			
12.4444	1	*		
12.8621	2	*		

\*Denotes locations significantly different at the .05 level.

### Third Problem

The third problem of this study was to determine if there were any differences in the teachers' or principal's perceptions of the school climate, as they are compared to junior high school and middle school. Two questionnaires, the PCI and the RSCI-FF, were administered to the 22 teachers and the principal of North Middle School. These same respondents participated in a climate study, conducted by Dr. Donald Robson in 1986, which utilized the same two questionnaires. The 1986 study had from 46 to 49 respondents. The 22 participants and the principal in this present study are those staff members still at North Middle School. A simple comparison was made of the data in 1986 and the data in 1990. Respondents' scores were plotted on scattergram forms for both studies, and are presented in Figures 1 through 5.

The PCI data were plotted on one scattergram form (Figure 1) since the design of this instrument does not cluster responses to answer different questions. It is a 20-item Likert-type scale with five categories for each item ranging from "strongly agree" to "strongly disagree." The PCI questionnaire is found in Appendix B. Reliability and construct validity have been supported by research (Mulhern, 1984). According to Robson (1986), a school's pupil control ideology orientation can be measured by pooling the individual ideologies of its professional staff members. This provides an indication of the degree of custodialism or humanism used in teacher/student relationships, which are one measure of school climate.

The RSSCI-FF is designed around five clusters: (1) principal support behavior, (2) principal control behavior, (3) teacher engagement behavior, (4) teacher frustration behavior, and (5) teacher intimacy behavior. Further description of each cluster is found in Appendix B. The teacher intimacy behavior was not used in climate considerations since it appears that social interaction does not affect a school's climate (Mulhern, 1984). The RSSCI-FF contains 33 descriptive statements, each on a four-point scale: rarely occurs, sometimes occurs, often occurs, and very frequently occurs. The revised instrument used in this study has two general factors built in. One is a measure of openness or closedness of teacher interaction and the other a measure of openness or closedness of teacher/principal interaction. The

RSSCI-FF scores from 1986 and 1990 are presented on four scattergram forms, one for each cluster (Figures 2 through 5).

The data from these instruments are reviewed in tabular form in this section (Tables 47 through 55). Tables 47 and 48 present frequency distribution of PCI data for pupil control attitude for 1986 and 1990, respectively; Figure 1 graphically displays these data on a scattergram. Tables 49 and 50 present frequency distribution of RSSCI-FF data for principal support behavior for 1986 and 1990, respectively; Figure 2 graphically displays these data. Tables 51 and 52 present frequency distribution of RSSCI-FF data for principal control behavior for 1986 and 1990, respectively; a graphic display of the data is presented in Figure 3. Tables 53 and 54 present frequency distribution of RSSCI-FF data for teacher engagement behavior for 1986 and 1990, respectively; Figure 4 graphically displays these data. Tables 55 and 56 present frequency distribution of RSSCI-FF data for teacher frustration behavior for 1986 and 1990, respectively; the scattergram in Figure 5 graphically displays these data.

Table 47. Frequency distribution of PCI data for pupil control attitude, 1986.

Score	Frequency	Score	Frequency
39	1	44	1
45	1	46	5
47	2	49	1
50	3	51	3
52	2	53	2
54	1	55	1
56	5	57	2
58	1	59	3
60	2	61	3
62	4	64	1
65	2	70	1
72	1	77	1
n = 49, Mean = 55.37, Range = 39-77, S.D. = 7.85, Principal's Perception = 47			

Table 48. Frequency distribution of PCI data for pupil control attitude, 1990.

Score	Frequency	Score	Frequency
41	1	47	1
48	1	53	3
54	1	56	3
57	3	59	1
60	1	61	1
62	1	65	1
67	2	73	1
76	1		
n = 22, Mean = 58.091, Range = 41-76, S.D. = 8.182, Principal's Perception = 40			

Figure 1. Scattergram comparing PCI 1986 and 1990 data.

**Pupil Control Ideology:** The extent to which teachers seek to subordinate and control students or allow students autonomy and freedom. (Custodial: Highly controlled, concerned with maintenance of order. Humanistic: Learning through interaction; relationships based on mutual respect and friendship.)

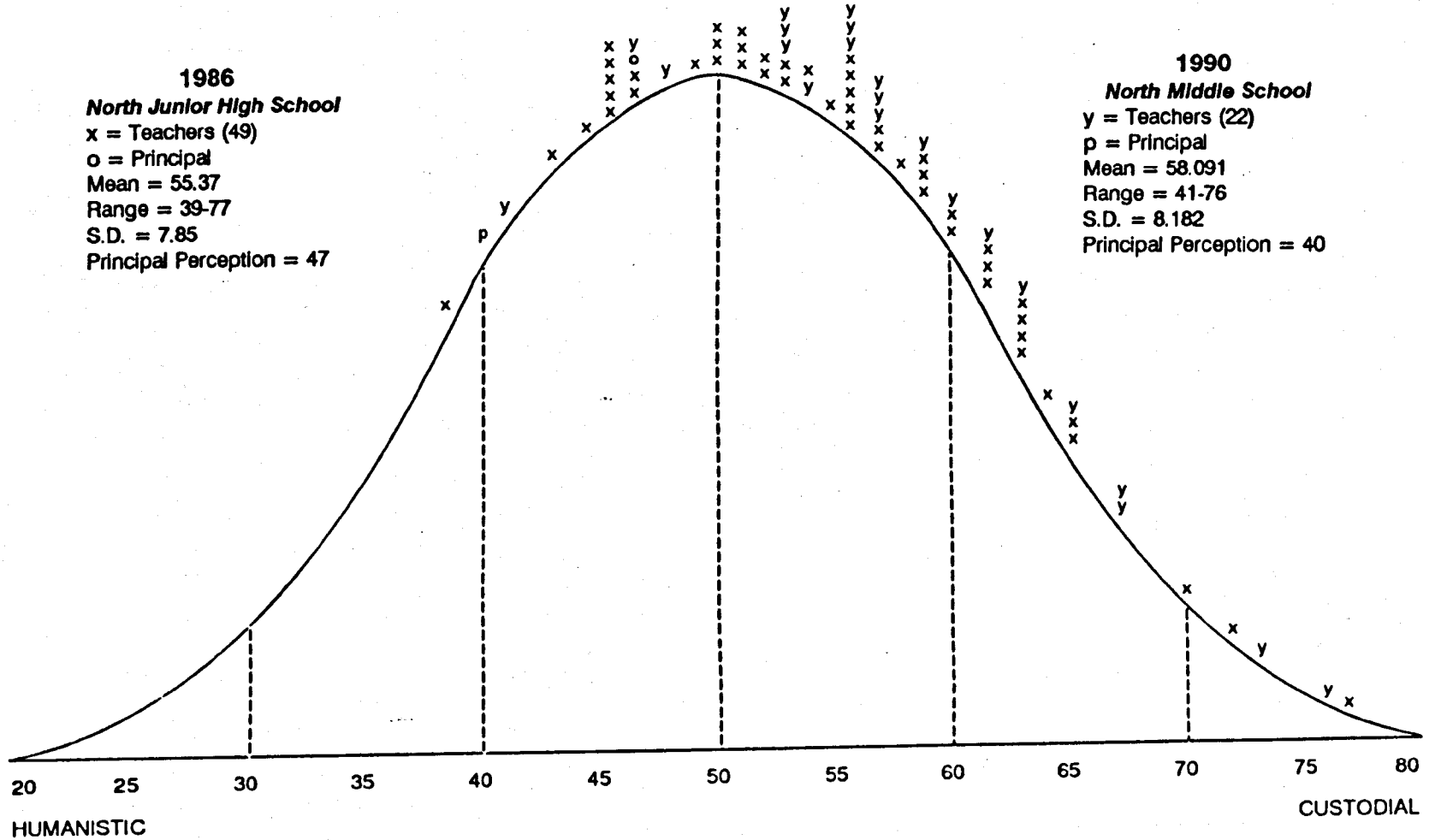


Table 49. Frequency distribution of RSSCI-FF data for principal support behavior, 1986.

Score	Frequency	Score	Frequency
10	1	12	1
14	4	15	3
16	4	17	5
18	5	19	3
20	5	21	2
22	3	23	1
24	3	25	2
26	3	27	3
n = 48, Mean = 19.40, Range = 10-27, S.D. = 4.32, Principal's Perception = 20			

Table 50. Frequency distribution of RSSCI-FF data for principal support behavior, 1990.

Score	Frequency	Score	Frequency
8	1	11	1
12	1	13	1
15	1	16	1
18	2	19	2
20	3	21	6
22	3		
n = 22, Mean = 18.227, Range = 8-22, S.D. = 4.011, Principal's Perception = 24			

Figure 2. Scattergram comparing RSSCI-FF 1986 and 1990 data for principal support behavior.

**Principal Support:** Behavior characterized by constructive criticism and setting an example of hard work. Concern for personal and professional welfare of teachers. Behavior enhances both the social needs and task-achievement needs of faculty.

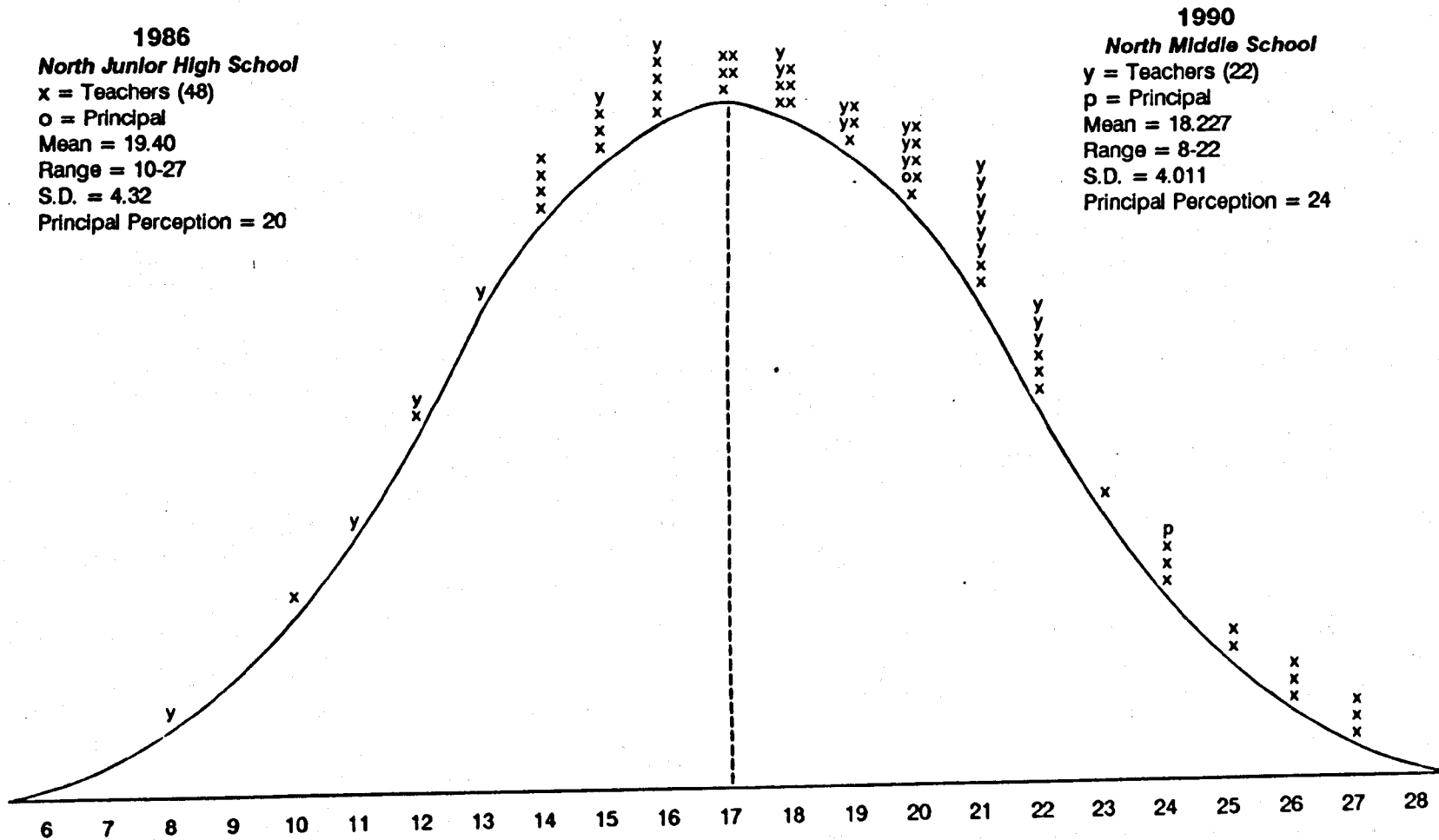


Table 51. Frequency distribution of RSSCI-FF data for principal control behavior, 1986.

Score	Frequency	Score	Frequency
13	1	14	1
15	1	16	2
18	2	19	4
20	3	21	5
22	6	23	5
24	5	25	2
26	7	27	1
28	1		
n = 46, Mean = 21.90, Range = 13-28, S.D. = 3.6, Principal's Perception = 22			

Table 52. Frequency distribution of RSSCI-FF data for principal control behavior, 1990.

Score	Frequency	Score	Frequency
9	1	11	3
12	1	14	1
15	3	17	1
18	2	19	3
20	2	21	1
22	1	23	2
26	1		
n = 22, Mean = 17.182, Range = 9-26, S.D. = 4.594, Principal's Perception = 9			

Figure 3. Scattergram comparing RSSCI-FF 1986 and 1990 data for principal control behavior.

**Principal Control:** Behavior characterized by close supervision and one-way communication. Highly task-oriented and domineering; autocratic behavior.

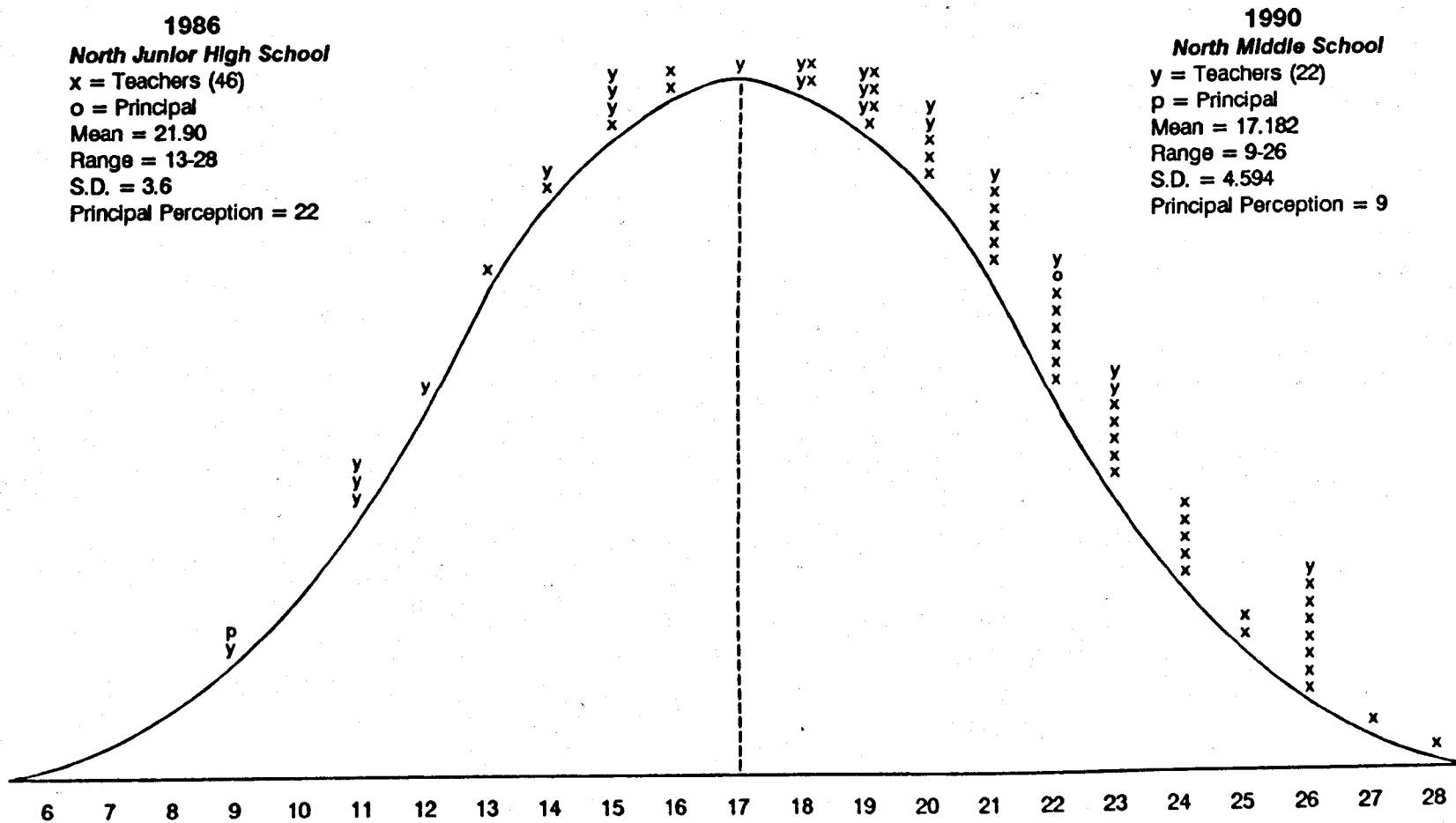


Table 53. Frequency distribution of RSSCI-FF data for teacher engagement behavior, 1986.

Score	Frequency	Score	Frequency
18	1	20	5
21	2	22	3
23	2	24	7
25	4	26	8
27	6	28	4
29	5	30	1
31	1		
n = 49, Mean = 25.04, Range = 18-31, S.D. = 3.1 Principal's Perception = 24			

Table 54. Frequency distribution of RSSCI-FF data for teacher engagement behavior, 1990.

Score	Frequency	Score	Frequency
11	1	14	1
15	1	16	1
17	2	18	4
19	3	20	2
21	1	22	3
23	1	24	2
n = 22, Mean = 18.955, Range = 11-24, S.D. = 3.273, Principal's Perception = 24			

Figure 4. Scattergram comparing RSSCI-FF 1986 and 1990 data for teacher engagement behavior.

**Teacher Engagement:** Behavior characterized by high morale, enthusiasm, respect for students and colleagues. A positive attitude toward work; pride in school and willingness to make extra effort for students.

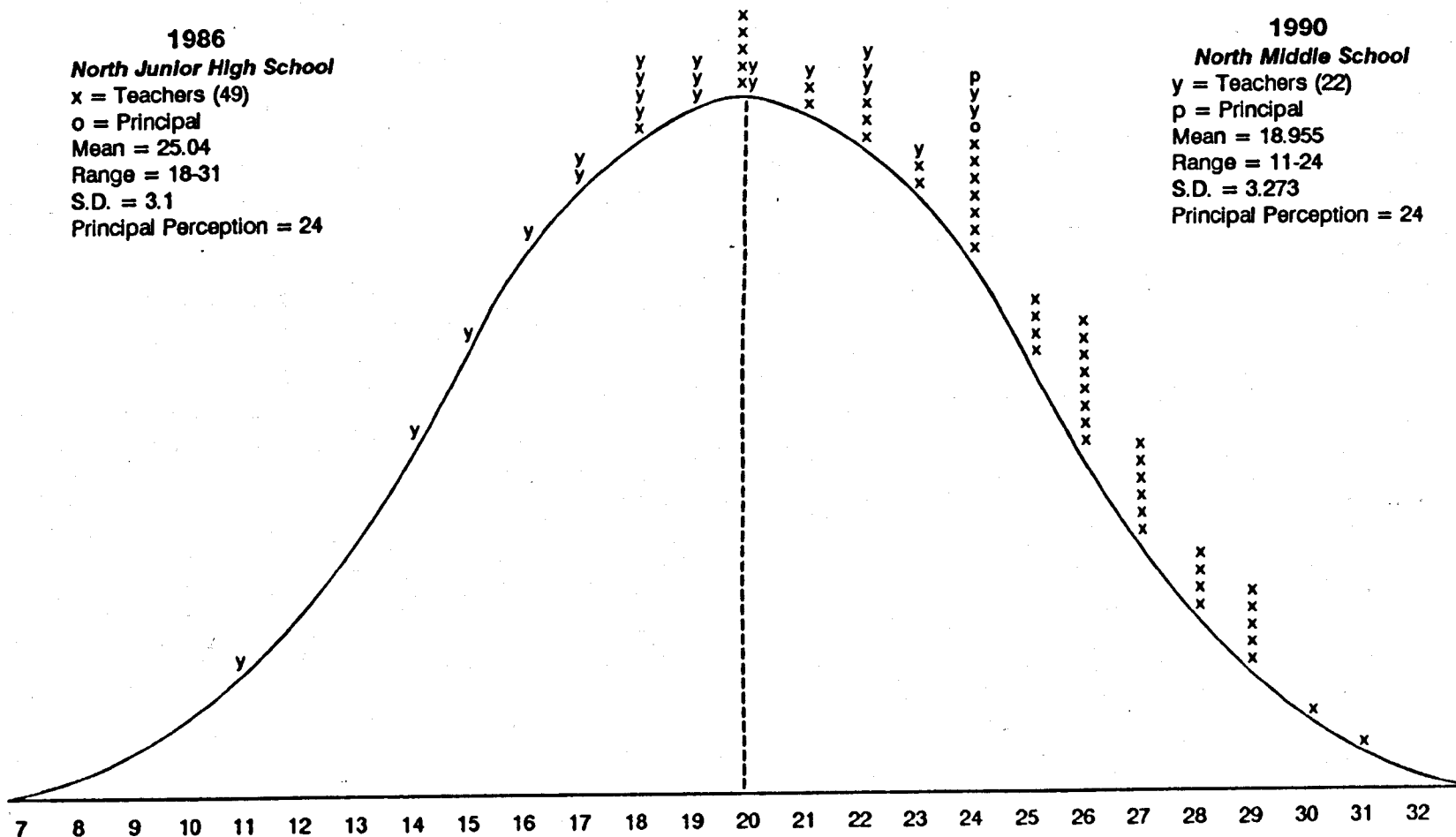


Table 55. Frequency distribution of RSSCI-FF data for teacher frustration behavior, 1986.

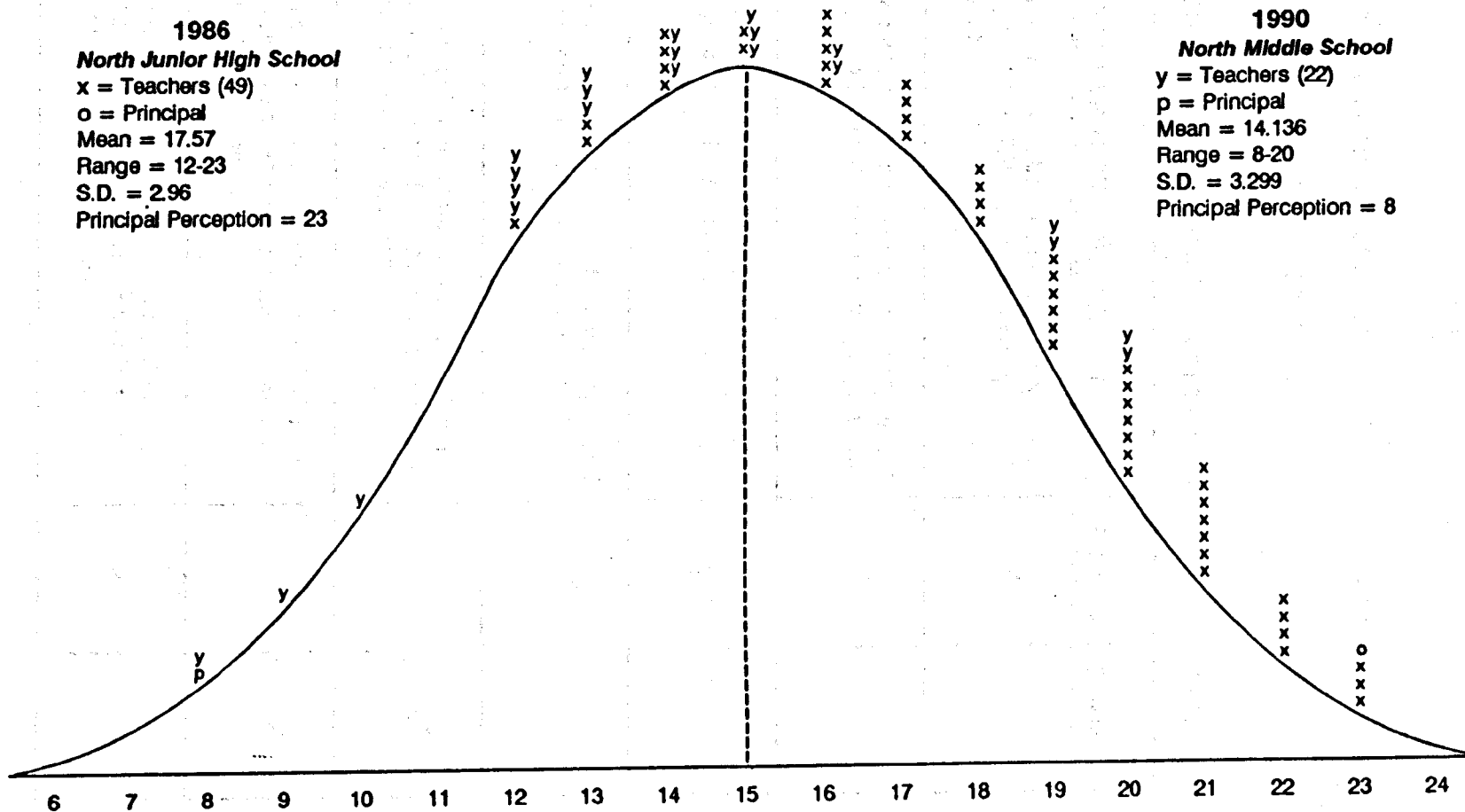
Score	Frequency	Score	Frequency
12	1	13	2
14	4	15	2
16	5	17	4
18	4	19	6
20	7	21	7
22	4	23	3
n = 49, Mean = 17.57, Range = 12-23, S.D. = 2.96, Principal's Perception = 23			

Table 56. Frequency distribution of RSSCI-FF data for teacher frustration behavior, 1990.

Score	Frequency	Score	Frequency
8	1	9	1
10	1	12	4
13	3	14	3
15	3	16	2
19	2	20	2
n = 22, Mean = 14.136, Range = 8-20, S.D. = 3.299, Principal's Perception = 8			

Figure 5. Scattergram comparing RSSCI-FF 1986 and 1990 data for teacher frustration behavior.

**Teacher Frustration:** General feeling that routine duties, paperwork, and assigned duties undermine teaching effectiveness. Low job satisfaction, disrespect for colleagues, and lack of enthusiasm; 'what's-the-use' attitude.



### Summary

Table 57 presents a summary of the status of retention or rejection of the 22 null hypotheses examined in this research.

Table 57. Summary of status of retention or rejection of null hypotheses.

Hypoth No.	NULL HYPOTHESIS STATEMENT	Retained	Rejected
1	There is no interaction between treatment type and student type on the ITBS scores in reading achievement.	✓	
2	There is no interaction between treatment type and student type on the ITBS scores in language skills achievement.	✓	
3	There is no interaction between treatment type and student type on the ITBS scores in work-study skills.	✓	
4	There is no interaction between treatment type and student type on the ITBS scores in mathematics achievement.	✓	
5	There is no significant difference in the ITBS language skills achievement scores among treatment groups for non-program students.		✓
6	There is no significant difference in the ITBS reading achievement scores among treatment groups for non-program students.		✓
7	There is no significant difference in the ITBS work-study skills achievement scores among treatment groups for non-program students.	✓	

Table 57--Continued.

Hypoth No.	NULL HYPOTHESIS STATEMENT	Retained	Rejected
8	There is no significant difference in the ITBS mathematics achievement scores among treatment groups for non-program students.		✓
9	There is no significant difference in the ITBS language skills achievement scores among treatment groups for at-risk students.	✓	
10	There is no significant difference in the ITBS reading achievement scores among treatment groups for at-risk students.	✓	
11	There is no significant difference in the ITBS work-study skills among treatment groups for at-risk students.	✓	
12	There is no significant difference in the ITBS mathematics achievement scores among treatment groups for at-risk students.	✓	
13	There is no significant difference in the ITBS language skills achievement scores among treatment groups for tutorial students.	✓	
14	There is no significant difference in the ITBS reading achievement scores among treatment groups for tutorial students.	✓	
15	There is no significant difference in the ITBS work-study skills achievement scores among treatment groups for tutorial students.	✓	
16	There is no significant difference in the ITBS mathematics achievement scores among treatment groups for tutorial students.	✓	

Table 57--Continued.

Hypoth No.	NULL HYPOTHESIS STATEMENT	Retained	Rejected
17	There is no significant difference in the ITBS language skills achievement scores among treatment groups for PACE students.	✓	
18	There is no significant difference in the ITBS reading achievement scores among treatment groups for PACE students.	✓	
19	There is no significant difference in the ITBS work-study skills achievement scores among treatment groups for PACE students.		✓
20	There is no significant difference in the ITBS mathematics achievement scores among treatment groups for PACE students.		✓
21	There are no significant differences between the clusters in part one of the MSAS and the school location (organizational pattern, i.e., middle school vs. junior high school).		✓
22	There are no significant differences between the clusters in part two of the MSAS and the school location (organizational pattern, i.e., middle school vs. junior high school).		✓

## CHAPTER 5

### SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

#### Introduction

The information reported in this chapter summarizes this study and provides conclusions and recommendations relative to the results of the research. This chapter is comprised of three sections. In the first section, a summary of the study and the findings is presented. In the second section, conclusions are drawn. Recommendations are offered in the final section.

#### Summary

This study examined the interaction and relationships of seventh grade students' achievement and attitudes toward school as well as teacher and principal perceptions of school climate when middle school was compared to junior high school. A total of 2,193 seventh grade students from three school districts or locations (Great Falls, location 1; Cut Bank, location 2; and Miles City, location 3); 22 teachers; and one building principal participated in this study.

### Summary of Major Problem

For the major problem, 1,661 seventh grade students from North Middle School in Great Falls were studied. Their achievement test scores from the Iowa Tests of Basic Skills in language skills, reading skills, work-study skills, and mathematics skills were used as the dependent variables.

The seventh grade students were studied for a four-year period, from the 1985-86 school year through the 1988-89 school year. For each year of the study, a different middle school treatment type was added to the North Middle School program. The treatments are identified as follows: treatment 1, junior high school departmentalization; treatment 2, interdisciplinary teaming; treatment 3, teaming and homebase; and treatment 4, teaming, homebase, and interdisciplinary units of instruction. The students were also classified into four types: at-risk (type 1), tutorial (type 2), non-program (type 3), and PACE (type 4). Student types and treatment types were the independent variables.

Hypotheses 1 through 4 tested for interaction between the independent variables of student type and treatment type and the dependent variables of ITBS test scores. All four hypotheses were retained, as there was no evidence of interaction.

In discussing tests for significant differences, each student type will be examined individually.

Non-program students (type 3). Hypotheses 5 through 8 were concerned with the type 3 student. Hypothesis 7 was retained as no significant differences occurred in work-study skills. Hypotheses 5, 6, and 8 were rejected. The Duncan post hoc testing procedure indicated that significant differences occurred in language skills, reading skills, and mathematics skills. The application of treatment type 2, teaming, with no other treatments, caused significant losses in achievement in language skills and reading achievement for non-program students. The data also indicated that significant losses in achievement occurred in mathematics when treatment type 3, teaming and homebase, was in place.

At-risk students (type 1). Hypotheses 9 through 12, those concerned with type 1 students, were retained. No significant differences were noted in language skills, reading skills, work-study skills, or mathematics skills. Statistically, these students achieved at the same level when attending a junior high school or a middle school.

Tutorial students (type 2). Hypotheses 13 through 16, those dealing with type 2 students, were retained. There were no significant differences in achievement in language skills, reading skills, work-study skills, or mathematics skills. Statistically, these students achieved at the same level when attending a junior high school or a middle school.

PACE students (type 4). Hypotheses 17 through 20 related to type 4 students. Hypotheses 17 and 18 were retained, as no significant differences

occurred in language skills or reading skills. Hypotheses 19 and 20 were rejected, as significant differences did occur in work-study skills and mathematics skills. Treatment 4 was significantly different from treatment 1. Type 4 students had greater achievement in work-study skills and mathematics skills with treatment 4 (interdisciplinary teaming, homebase, and interdisciplinary units of instruction) than with treatment 1 (a departmentalized junior high school). For PACE students, the organization of the school, whether it was middle school or junior high school, made no difference in language or reading achievement.

#### Summary of Second Problem

The second problem of this study investigated student attitudes. Students from the three locations were administered the Minnesota School Attitude Survey (Appendix A). Each cluster measured student attitude and was compared with each location to see if there were any differences.

Hypotheses 21 and 22 were used to test the second problem of this study. They were both rejected since significant differences occurred when a one-way analysis of variance was used to test the data. Hypothesis 21 was rejected because clusters 3 and 4 (Fine Arts and Learning Activities, respectively) were significantly different. Analysis of cluster 3 showed that location 3, a junior high school, was different from location 1, a middle school. For this part of the study, the lowest means indicated the most positive responses. The five-point Likert-type scale used on the MSAS

ranged, on part one, from "important and pleasant" (which was valued at one) to "unimportant and unpleasant" (valued at five). Part two of the MSAS was scored with a four-point Likert-type scale with responses ranging from "true" (valued at one) to "false" (valued at four). Students from location 1, a middle school, displayed the most positive responses to cluster 3, students' school attitudes toward fine arts. Results of the Duncan post hoc procedure are presented in Table 37.

Cluster 4 analysis, attitudes towards learning activities, showed a significant difference between location 2, a junior high school, and locations 1 and 3, a middle school and a junior high school, respectively. Students from location 2 displayed the most negative responses in cluster 4. Results of the Duncan post hoc procedure are presented in Table 40.

Hypothesis 22 was rejected because there were significant differences in cluster 4 (Fairness) and cluster 11 (Internal Motivation).

Students from location 2, a junior high school, were significantly more negative in attitudes toward fairness than students from location 3, a junior high school. Results of the Duncan post hoc procedure are presented in Table 43.

Cluster 11, measuring internal motivation, showed significance. Seventh grade students from locations 1 and 2, a middle school and a junior high school, respectively, were significantly more negative than students from

location 3, a junior high school. Results of the Duncan post hoc procedure are presented in Table 46.

### Summary of Third Problem

The third problem of the study considered teacher and principal perceptions of school climate. In 1990, the PCI and RSSCI-FF were administered to 22 teachers and the principal of North Middle School. These questionnaires are found in Appendix B. A comparison was made to the responses submitted by these same teachers and principal on the PCI and RSSCI-FF in 1986 by the plotting of the scored responses on a scattergram.

The purpose of this part of the study was to get a general feeling of any major changes in climate perceptions. The plotting of the 1986 and 1990 scores from the PCI and the RSSCI-FF on a scattergram made a visual observation possible. Since the purpose was to observe general changes in attitudes, hypotheses were not developed for this part of the problem. Tables 47 through 56 and Figures 1 through 5 display the data that were used for analysis. Five different attitudes were tested, each of which will be discussed separately.

The PCI. Data are found in Tables 47 and 48 and Figure 1. Visual inspection of the scattergram and the means indicate a minimal change in teachers' attitudes towards pupil control. Extreme humanism would result with a mean of 20, while extreme custodialism would result with a mean of 100. Middle school researchers suggest that the discipline practices of

successful middle schools tend to be more humanistic in nature; however, the 1990 mean of 58.091, when compared to the 1986 mean of 55.37, suggested that the teachers were slightly more custodial under the middle school organization. The principal tended to be more humanistic in 1990, with a score of 40, than in 1986 when a score of 47 was recorded. The principal's perceptions of pupil control were considerably more humanistic than the teachers' perceptions of student control. With a teacher mean of 58.091, the teachers cannot be characterized as either humanistic or custodial.

Principal support behavior. The data for this analysis are found in Tables 49 and 50 and Figure 2. The most negative score possible with this cluster was 28, and the most positive was 7. The teacher mean in 1986 was 19.40; in 1990 it was 18.227. While the change was slight, the teachers' perceptions of the principal's support are more positive. The principal's perception of his support of staff as measured by the questions was slightly less positive. In 1986 the score was 20, and in 1990 a score of 24 was recorded.

Principal control behavior. The data for this analysis are presented in Tables 51 and 52 and Figure 3. The most negative score possible with this cluster was 28, and the most positive a 7. The teacher mean in 1986 was 21.90, and in 1990 was 17.182. The principal's score in 1986 was 22, and in 1990 a score of 9 was recorded. The teachers and the principal indicated that, when compared to the 1986 study, in 1990 the principal was more

approachable and sustained better communication. The difference in the principal's perception from 1986 to 1990 appears to be considerable.

Teacher engagement behavior. Data for this analysis are presented in Tables 53 and 54 and Figure 4. The most negative score possible with this cluster was 32, and the most positive was 8. The teachers' mean score in 1986 was 25.04; in 1990 it was 18.955. The principal's score was 24 for both years. The data suggest that the teachers were more positive and enthusiastic toward their work in 1990 than in 1986.

Teacher frustration behavior. Data for this analysis are found in Tables 55 and 56 and Figure 5. The most negative score possible with this cluster was 24, and the most positive was 6. The teacher mean in 1986 was 17.57; in 1990 it was 14.136. The principal scored more positively in 1990 with a score of 8, compared to a score of 23 in 1986. Analysis of the data suggests that the teachers and the principal felt more positively towards school climate as measured by teacher frustrations which relate to extra duties, paperwork, job satisfaction, and enthusiasm.

## Conclusions

### Conclusions of Major Problem

- (1) Twenty hypotheses were used to test the data for the major problem of this study. Fifteen were retained, as no significance resulted from statistical analysis. For at-risk students (type 1) and tutorial students

- (type 2), no significance was evident in any area studied. For these students, and for all those students addressed in the retained hypotheses, there was no difference in achievement due to treatment types.
- (2) Of the 20 hypotheses used to test the data for the major problem, only five were rejected due to significance; these hypotheses were concerned with reading, language, and mathematics achievement for non-program students, and work-study skills and mathematics achievement for PACE students. All five analysis areas displayed evidence that treatment type 4 facilitated greater achievement than other treatments studied in this research. For PACE and non-program students, the data indicated that middle school as defined in this study (treatment 4) must be fully implemented for all needs to be met.
- (3) Type 3, non-program students, achieved at a significantly lower level in reading skills and language skills when only treatment 2 (interdisciplinary teaming) was in place. The data indicated that treatment 2 produced significantly lower achievement in reading and language skills than did treatment 1 (junior high school), treatment 3 (interdisciplinary teaming and homebase), or treatment 4 (teaming, homebase, and interdisciplinary units of instruction). Additionally, the data indicated that mathematics achievement was significantly lower for non-program students when only treatment 3 (teaming and homebase) was in place. If the needs of the non-program students are to be met, an affective component must be included

with the teaming as well as the use of interdisciplinary instruction. If treatment 4 is not fully implemented, the data suggest that non-program students will have greater academic success in a departmentalized junior high school.

- (4) Type 4, PACE students, scored significantly higher in work-study skills and mathematics skills when treatment type 4 (interdisciplinary teaming, homebase, and interdisciplinary units of instruction) was in place. These scores were significantly greater than the scores resulting from treatment 1 (junior high school), treatment 2 (teaming), or treatment 3 (teaming and homebase). In the areas of work-study skills and mathematics skills, PACE students responded well to the criteria which differentiate a middle school from a junior high school (i.e., teaming, homebase, and interdisciplinary teaching strategies). PACE students were not negatively affected in language or reading skills.

#### Conclusions of Second Problem

The second part of this study indicated no consistent conclusions. In three out of the four significant clusters, junior high school students at location 3 displayed the most positive responses. The junior high school students at location 2 showed the most negative responses in three out of the four significant clusters. The middle school students at location 1 displayed the most positive responses in one out of the four clusters tested and the second most positive responses in the remaining three significant clusters.

The students who responded the most negatively were from the smallest school, location 2. None of the components of treatment 4 of this research project are included in the school's program. Location 3 did include a homebase (affective education) program for its students. Location 1 utilized all the treatments studied in this research problem. Location 1, a middle school, displayed scores for three of the four significant clusters which were statistically more positive than location 2 (a junior high school), and statistically more negative in three out of the four significant clusters than location 3 (a junior high school). Location 3 utilized a homebase program. Its students were more positive than location 1 (which had implemented teaming, homebase, and interdisciplinary units of instruction) and location 2 (which incorporated departmentalized instruction). Students attending a departmentalized school with an affective education (homebase) program had the most positive attitudes in the significant clusters of fine arts, learning activities, fairness, and internal motivation. Middle school, as defined in this study, did not negatively affect student attitudes when compared to a traditional junior high school.

#### Conclusions of Third Problem

- (1) The visual examination of RSSCI-FF clusters (principal support behavior, principal control behavior, teacher engagement behavior, and teacher frustration behavior) indicated that the middle school concept seemed to improve communication and cooperation and the overall school climate as opposed to the junior high school organization. This conclusion confirms

- the findings of Doda et al. (1987), Howell (1969), and McPartland (1987), which suggest improved teacher attitudes with middle school organization as compared to junior high school.
- (2) Examination of the PCI data indicated that the teachers seemed to be more custodial in their approach to student discipline in 1990 in a middle school than in a junior high school setting in 1986. This is contrary to data that indicate that middle school organizations are more humanistic toward students than junior high schools.
- (3) Examination of the PCI data indicated that the principal's perception of student control seemed to be more humanistic in the middle school as compared to the junior high school. This conclusion supports research conducted by George and Oldaker (1985), James (1986), and Miller (1976).

### Overall Conclusions

The data in this study indicated that to adequately meet the needs of the non-program students who are the majority population in the school, the criterial attributes of middle school as defined in this study, particularly teaming, homebase (affective education), and interdisciplinary instruction, must all be implemented. The inclusion of interdisciplinary teaming by itself into the organizational arrangement of the school may statistically reduce achievement in the areas of reading and language achievement for the non-program students. The data suggested it would be better to departmentalize, as in a

junior high school, than to partially introduce middle school. In this study, only the PACE students, who were the brightest and the highest achievers, made significant gains when middle school was fully implemented. Attending a junior high school may significantly lower work-study skills and mathematics skills for this group.

Results of the RSSCI-FF indicated that teachers were more satisfied under a middle school organizational pattern. Over time, this may begin to positively affect student achievement, which is suggested by the research of Baker and Beauchamp (1972) and McGee and Kraejewski (1979). They indicated that positive changes in teacher attitudes occurred as a result of the transition to middle school from junior high school and that this improvement may have led to better student achievement and attitude.

The transition to middle school did not result in significantly increased student achievement. Only five of the 20 hypotheses used to test these data indicated significance. However, there are no data to suggest that the middle school negatively affected achievement in any area.

#### Recommendations for Action

- (1) School districts considering the middle school organization should fully implement the components of treatment 4 of this study: teaming, home-base, and interdisciplinary instruction. Negative achievement was indicated in this study when the middle school was only partially established.

- (2) Junior high schools organized in a departmentalized fashion should add a homebase (affective education) component to the program. Data from this study suggest that homebase improves student attitude.

#### Recommendations for Further Study

- (1) A study should be conducted with a school utilizing block scheduling. The middle school in this study does not block schedule, and this can inhibit the design of interdisciplinary units of instruction.
- (2) A study should be designed to test the variable of a well-planned staff development program.
- (3) Further research should be performed to investigate the longitudinal effects of middle school treatments.
- (4) A study should be conducted to discover why non-program students do not gain in achievement when just interdisciplinary teaming is applied.

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**APPENDICES**

**APPENDIX A**

**MINNESOTA SCHOOL ATTITUDE SURVEY (MSAS)**

**AND**

**LIST OF MAJOR MSAS SUMMARY CLUSTERS**

## MINNESOTA SCHOOL ATTITUDE SURVEY

### PART 1.

*Fill in one circle in each row on the right to show how YOU  
feel about what is written in the numbered item at the left.*

- |  |  |
|--|--|
| 1. Learning math                                 | important <input type="radio"/> - <input type="radio"/> - <input type="radio"/> - <input type="radio"/> - <input type="radio"/> unimportant<br>pleasant <input type="radio"/> - <input type="radio"/> - <input type="radio"/> - <input type="radio"/> - <input type="radio"/> unpleasant |
| 2. Learning to read better                       | important <input type="radio"/> - <input type="radio"/> - <input type="radio"/> - <input type="radio"/> - <input type="radio"/> unimportant<br>pleasant <input type="radio"/> - <input type="radio"/> - <input type="radio"/> - <input type="radio"/> - <input type="radio"/> unpleasant |
| 3. Learning about our country                    | important <input type="radio"/> - <input type="radio"/> - <input type="radio"/> - <input type="radio"/> - <input type="radio"/> unimportant<br>pleasant <input type="radio"/> - <input type="radio"/> - <input type="radio"/> - <input type="radio"/> - <input type="radio"/> unpleasant |
| 4. Learning about other countries                | important <input type="radio"/> - <input type="radio"/> - <input type="radio"/> - <input type="radio"/> - <input type="radio"/> unimportant<br>pleasant <input type="radio"/> - <input type="radio"/> - <input type="radio"/> - <input type="radio"/> - <input type="radio"/> unpleasant |
| 5. Learning language (English)                   | important <input type="radio"/> - <input type="radio"/> - <input type="radio"/> - <input type="radio"/> - <input type="radio"/> unimportant<br>pleasant <input type="radio"/> - <input type="radio"/> - <input type="radio"/> - <input type="radio"/> - <input type="radio"/> unpleasant |
| 6. Learning spelling                             | important <input type="radio"/> - <input type="radio"/> - <input type="radio"/> - <input type="radio"/> - <input type="radio"/> unimportant<br>pleasant <input type="radio"/> - <input type="radio"/> - <input type="radio"/> - <input type="radio"/> - <input type="radio"/> unpleasant |
| 7. Learning about music                          | important <input type="radio"/> - <input type="radio"/> - <input type="radio"/> - <input type="radio"/> - <input type="radio"/> unimportant<br>pleasant <input type="radio"/> - <input type="radio"/> - <input type="radio"/> - <input type="radio"/> - <input type="radio"/> unpleasant |
| 8. Learning science                              | important <input type="radio"/> - <input type="radio"/> - <input type="radio"/> - <input type="radio"/> - <input type="radio"/> unimportant<br>pleasant <input type="radio"/> - <input type="radio"/> - <input type="radio"/> - <input type="radio"/> - <input type="radio"/> unpleasant |
| 9. Following school rules                        | important <input type="radio"/> - <input type="radio"/> - <input type="radio"/> - <input type="radio"/> - <input type="radio"/> unimportant<br>pleasant <input type="radio"/> - <input type="radio"/> - <input type="radio"/> - <input type="radio"/> - <input type="radio"/> unpleasant |
| 10. Listening to the teacher                     | important <input type="radio"/> - <input type="radio"/> - <input type="radio"/> - <input type="radio"/> - <input type="radio"/> unimportant<br>pleasant <input type="radio"/> - <input type="radio"/> - <input type="radio"/> - <input type="radio"/> - <input type="radio"/> unpleasant |
| 11. Choosing who I want to work<br>with in class | important <input type="radio"/> - <input type="radio"/> - <input type="radio"/> - <input type="radio"/> - <input type="radio"/> unimportant<br>pleasant <input type="radio"/> - <input type="radio"/> - <input type="radio"/> - <input type="radio"/> - <input type="radio"/> unpleasant |
| 12. Writing stories or reports                   | important <input type="radio"/> - <input type="radio"/> - <input type="radio"/> - <input type="radio"/> - <input type="radio"/> unimportant<br>pleasant <input type="radio"/> - <input type="radio"/> - <input type="radio"/> - <input type="radio"/> - <input type="radio"/> unpleasant |

*MSAS PART 1 (continued)*

- |   |   |   |
|---|---|---|
| 13. Watching plays                                | important <input type="radio"/> - <input type="radio"/> - <input type="radio"/> - <input type="radio"/> - <input type="radio"/> | unimportant <input type="radio"/> - <input type="radio"/> - <input type="radio"/> - <input type="radio"/> - <input type="radio"/> |
|   | pleasant <input type="radio"/> - <input type="radio"/> - <input type="radio"/> - <input type="radio"/> - <input type="radio"/>  | unpleasant <input type="radio"/> - <input type="radio"/> - <input type="radio"/> - <input type="radio"/> - <input type="radio"/>  |
| 14. Doing schoolwork by myself                    | important <input type="radio"/> - <input type="radio"/> - <input type="radio"/> - <input type="radio"/> - <input type="radio"/> | unimportant <input type="radio"/> - <input type="radio"/> - <input type="radio"/> - <input type="radio"/> - <input type="radio"/> |
|   | pleasant <input type="radio"/> - <input type="radio"/> - <input type="radio"/> - <input type="radio"/> - <input type="radio"/>  | unpleasant <input type="radio"/> - <input type="radio"/> - <input type="radio"/> - <input type="radio"/> - <input type="radio"/>  |
| 15. Going to school sports events                 | important <input type="radio"/> - <input type="radio"/> - <input type="radio"/> - <input type="radio"/> - <input type="radio"/> | unimportant <input type="radio"/> - <input type="radio"/> - <input type="radio"/> - <input type="radio"/> - <input type="radio"/> |
|   | pleasant <input type="radio"/> - <input type="radio"/> - <input type="radio"/> - <input type="radio"/> - <input type="radio"/>  | unpleasant <input type="radio"/> - <input type="radio"/> - <input type="radio"/> - <input type="radio"/> - <input type="radio"/>  |
| 16. Using the school library<br>(learning center) | important <input type="radio"/> - <input type="radio"/> - <input type="radio"/> - <input type="radio"/> - <input type="radio"/> | unimportant <input type="radio"/> - <input type="radio"/> - <input type="radio"/> - <input type="radio"/> - <input type="radio"/> |
|   | pleasant <input type="radio"/> - <input type="radio"/> - <input type="radio"/> - <input type="radio"/> - <input type="radio"/>  | unpleasant <input type="radio"/> - <input type="radio"/> - <input type="radio"/> - <input type="radio"/> - <input type="radio"/>  |
| 17. Drawing or painting in art class              | important <input type="radio"/> - <input type="radio"/> - <input type="radio"/> - <input type="radio"/> - <input type="radio"/> | unimportant <input type="radio"/> - <input type="radio"/> - <input type="radio"/> - <input type="radio"/> - <input type="radio"/> |
|   | pleasant <input type="radio"/> - <input type="radio"/> - <input type="radio"/> - <input type="radio"/> - <input type="radio"/>  | unpleasant <input type="radio"/> - <input type="radio"/> - <input type="radio"/> - <input type="radio"/> - <input type="radio"/>  |
| 18. Doing science experiments                     | important <input type="radio"/> - <input type="radio"/> - <input type="radio"/> - <input type="radio"/> - <input type="radio"/> | unimportant <input type="radio"/> - <input type="radio"/> - <input type="radio"/> - <input type="radio"/> - <input type="radio"/> |
|   | pleasant <input type="radio"/> - <input type="radio"/> - <input type="radio"/> - <input type="radio"/> - <input type="radio"/>  | unpleasant <input type="radio"/> - <input type="radio"/> - <input type="radio"/> - <input type="radio"/> - <input type="radio"/>  |
| 19. Having recess or free periods<br>in school    | important <input type="radio"/> - <input type="radio"/> - <input type="radio"/> - <input type="radio"/> - <input type="radio"/> | unimportant <input type="radio"/> - <input type="radio"/> - <input type="radio"/> - <input type="radio"/> - <input type="radio"/> |
|   | pleasant <input type="radio"/> - <input type="radio"/> - <input type="radio"/> - <input type="radio"/> - <input type="radio"/>  | unpleasant <input type="radio"/> - <input type="radio"/> - <input type="radio"/> - <input type="radio"/> - <input type="radio"/>  |
| 20. Reading poems                                 | important <input type="radio"/> - <input type="radio"/> - <input type="radio"/> - <input type="radio"/> - <input type="radio"/> | unimportant <input type="radio"/> - <input type="radio"/> - <input type="radio"/> - <input type="radio"/> - <input type="radio"/> |
|   | pleasant <input type="radio"/> - <input type="radio"/> - <input type="radio"/> - <input type="radio"/> - <input type="radio"/>  | unpleasant <input type="radio"/> - <input type="radio"/> - <input type="radio"/> - <input type="radio"/> - <input type="radio"/>  |
| 21. Learning about history                        | important <input type="radio"/> - <input type="radio"/> - <input type="radio"/> - <input type="radio"/> - <input type="radio"/> | unimportant <input type="radio"/> - <input type="radio"/> - <input type="radio"/> - <input type="radio"/> - <input type="radio"/> |
|   | pleasant <input type="radio"/> - <input type="radio"/> - <input type="radio"/> - <input type="radio"/> - <input type="radio"/>  | unpleasant <input type="radio"/> - <input type="radio"/> - <input type="radio"/> - <input type="radio"/> - <input type="radio"/>  |
| 22. Being a good student                          | important <input type="radio"/> - <input type="radio"/> - <input type="radio"/> - <input type="radio"/> - <input type="radio"/> | unimportant <input type="radio"/> - <input type="radio"/> - <input type="radio"/> - <input type="radio"/> - <input type="radio"/> |
|   | pleasant <input type="radio"/> - <input type="radio"/> - <input type="radio"/> - <input type="radio"/> - <input type="radio"/>  | unpleasant <input type="radio"/> - <input type="radio"/> - <input type="radio"/> - <input type="radio"/> - <input type="radio"/>  |
| 23. Being in school clubs                         | important <input type="radio"/> - <input type="radio"/> - <input type="radio"/> - <input type="radio"/> - <input type="radio"/> | unimportant <input type="radio"/> - <input type="radio"/> - <input type="radio"/> - <input type="radio"/> - <input type="radio"/> |
|   | pleasant <input type="radio"/> - <input type="radio"/> - <input type="radio"/> - <input type="radio"/> - <input type="radio"/>  | unpleasant <input type="radio"/> - <input type="radio"/> - <input type="radio"/> - <input type="radio"/> - <input type="radio"/>  |
| 24. Using workbooks                               | important <input type="radio"/> - <input type="radio"/> - <input type="radio"/> - <input type="radio"/> - <input type="radio"/> | unimportant <input type="radio"/> - <input type="radio"/> - <input type="radio"/> - <input type="radio"/> - <input type="radio"/> |
|   | pleasant <input type="radio"/> - <input type="radio"/> - <input type="radio"/> - <input type="radio"/> - <input type="radio"/>  | unpleasant <input type="radio"/> - <input type="radio"/> - <input type="radio"/> - <input type="radio"/> - <input type="radio"/>  |
| 25. Doing a school project of my own              | important <input type="radio"/> - <input type="radio"/> - <input type="radio"/> - <input type="radio"/> - <input type="radio"/> | unimportant <input type="radio"/> - <input type="radio"/> - <input type="radio"/> - <input type="radio"/> - <input type="radio"/> |
|   | pleasant <input type="radio"/> - <input type="radio"/> - <input type="radio"/> - <input type="radio"/> - <input type="radio"/>  | unpleasant <input type="radio"/> - <input type="radio"/> - <input type="radio"/> - <input type="radio"/> - <input type="radio"/>  |
| 26. Teachers                                      | important <input type="radio"/> - <input type="radio"/> - <input type="radio"/> - <input type="radio"/> - <input type="radio"/> | unimportant <input type="radio"/> - <input type="radio"/> - <input type="radio"/> - <input type="radio"/> - <input type="radio"/> |
|   | pleasant <input type="radio"/> - <input type="radio"/> - <input type="radio"/> - <input type="radio"/> - <input type="radio"/>  | unpleasant <input type="radio"/> - <input type="radio"/> - <input type="radio"/> - <input type="radio"/> - <input type="radio"/>  |



**MSAS PART 1 (continued)**

41. My friends  
 important ---- unimportant  
 pleasant ---- unpleasant
42. Talking to the whole class  
 about my own ideas  
 important ---- unimportant  
 pleasant ---- unpleasant
43. Talking to the whole class  
 about my own feelings  
 important ---- unimportant  
 pleasant ---- unpleasant
44. Choosing what I want to learn  
 about in school  
 important ---- unimportant  
 pleasant ---- unpleasant
- (Items 45-50 blank)*
51. Learning a foreign language  
 important ---- unimportant  
 pleasant ---- unpleasant
52. Learning home economics  
 important ---- unimportant  
 pleasant ---- unpleasant
53. Learning about business  
 important ---- unimportant  
 pleasant ---- unpleasant
54. Learning industrial arts  
 important ---- unimportant  
 pleasant ---- unpleasant

**CONTINUE TO NEXT PAGE**

## PART 2.

Fill in one circle for each sentence to show how true it is for YOU.

1. I have to hurry to finish my work in school. ○-○-○-○  
true false
2. My teachers care about how much I learn. ○-○-○-○  
true false
3. My teachers like me the way I am. ○-○-○-○  
true false
4. I like to have other students help me learn. ○-○-○-○  
true false
5. My teachers grade my work fairly. ○-○-○-○  
true false
6. I would rather work with other students than by myself. ○-○-○-○  
true false
7. I do schoolwork to make my teachers happy. ○-○-○-○  
true false
8. I do schoolwork to make my parents happy. ○-○-○-○  
true false
9. I do schoolwork to keep my teachers from getting mad at me. ○-○-○-○  
true false
10. I do schoolwork because it's interesting. ○-○-○-○  
true false
11. I do schoolwork so other students will like me. ○-○-○-○  
true false
12. I do schoolwork because it's fun. ○-○-○-○  
true false
13. My teachers are interested in what I have to say. ○-○-○-○  
true false
14. My friends want to do better work than I do. ○-○-○-○  
true false

**MSAS PART 2 (continued)**

15. I like to be told exactly what to do in class. ---  
true false
16. My teachers care about my feelings. ---  
true false
17. I like to learn in school. ---  
true false
18. I like to do better work than my friends. ---  
true false
19. My teachers like to help me learn. ---  
true false
20. I am just as important in the school as any other student. ---  
true false
21. Some of my teachers understand me pretty well. ---  
true false
22. My teachers give me too much work to do. ---  
true false
23. I'm doing a good job of learning in school. ---  
true false
24. I feel I am a part of what is going on in school. ---  
true false
25. My teachers like me as much as they like other students. ---  
true false
26. I wish there were more rules in school. ---  
true false
27. Work in school is often too hard for me. ---  
true false
28. I like to study what the teacher wants me to. ---  
true false

**MSAS PART 2 (continued)**

29. I like to get better grades than other students do.      ---  
true false
30. My teachers think it's important to be my friend.      ---  
true false
31. I have many questions I don't get to ask.      ---  
true false
32. I like to help other students learn.      ---  
true false
33. I like to have the teacher see my work.      ---  
true false
34. I don't learn well if I'm given a lot of free time.      ---  
true false
35. My teachers like to see my work.      ---  
true false
36. Other students like me.      ---  
true false
37. I get as much of a chance as other students to do special things.      ---  
true false
38. My grades in school really show how much I know.      ---  
true false
39. My teachers are fair in making me follow rules.      ---  
true false
40. I feel that school is preparing me for my life's work.      ---  
true false

**END**

## LIST OF MAJOR MSAS SUMMARY CLUSTERS

### MSAS PART 1

#### 1. SUMMARY CLUSTER -- SCHOOL

##### Cluster 1 -- Basic Subjects:

- 01 Learning math
- 02 Learning to read better
- 05 Learning language (English)
- 08 Learning science
- 06 Learning spelling
- 12 Writing stories or reports

##### Cluster 2 -- Other Subjects:

- 03 Learning about our country
- 04 Learning about other countries
- 21 Learning about history
- 32 Taking physical education (gym)
- 51 Learning a foreign language
- 52 Learning home economics
- 53 Learning about business
- 54 Learning about industrial arts

##### Cluster 3 -- Fine Arts:

- 07 Learning about music
- 13 Watching plays
- 17 Drawing or painting in art class
- 20 Reading poems

##### Cluster 4 -- Learning Activities:

- 18 Doing science experiments
- 24 Using workbooks
- 33 Learning on a computer in school
- 36 Watching films in school
- 40 Taking tests

Cluster 5 -- Extra Class Activities:

- 15 Going to school sports events
- 16 Using the school library (learning center)
- 23 Being in school clubs

## 2. SUMMARY CLUSTER -- SELF

Cluster 6 -- Student Role:

- 09 Following school rules
- 10 Listening to the teacher
- 22 Being a good student

**MSAS PART 2**

## 1. SUMMARY CLUSTER --

Cluster 3 -- Acceptance:

- 03 My teachers like me the way I am
- 24 I feel I am a part of what is going on in school
- 25 My teachers like me as much as they like other students
- 36 Other students like me

Cluster 4 -- Fairness:

- 05 My teachers grade my work fairly
- 37 I get as much of a chance as other students to do special things
- 39 My teachers are fair in making me follow rules

## 2. SUMMARY CLUSTER -- PRESSURE

Cluster 5 -- Academic Pressure:

- 01 I have to hurry to finish my work in school
- 22 My teachers give me too much work
- 27 Work in school is often too hard for me
- 31 I have many questions I don't get to ask

Cluster 6 -- Competition:

- 14 My friends want to do better work than I do
- 18 I like to do better work than my friends
- 29 I like to get better grades than other students do

Cluster 7 -- External Motivation:

- 07 I do schoolwork to make my teachers happy
- 08 I do schoolwork to make my parents happy
- 09 I do schoolwork to keep my teachers from getting mad at me
- 11 I do schoolwork so other students will like me

## 3. SUMMARY CLUSTER -- PERSONAL DEVELOPMENT

Cluster 8 -- Personal Worth as a Student:

- 20 I am just as important in the school as any other student
- 23 I'm doing a good job of learning in school
- 33 I like to have the teacher see my work

Cluster 9 -- Need for Structure:

- 15 I like to be told exactly what to do in class
- 26 I wish there were more rules in school
- 28 I like to study what the teacher wants me to
- 34 I don't learn well if I'm given a lot of free time

Cluster 10 -- Cooperation:

- 04 I like to have other students help me learn
- 06 I would rather work with other students than by myself
- 32 I like to help other students learn

Cluster 11 -- Internal Motivation:

- 10 I do schoolwork because it's interesting
- 12 I do schoolwork because it's fun
- 17 I like to learn in school
- 38 My grades in school really show how much I know
- 40 I feel that school is preparing me for my life's work

*Selected Contrasts:**External-Internal Motivation**Competition-Cooperation**Academic Set (Academic Support, Fairness, Pressure,  
Need for Structure)**Personal Set (Personal Support, Acceptance, Personal Worth)*

APPENDIX B

PUPIL CONTROL IDEOLOGY FORM (PCI)

AND

RUTGERS SECONDARY SCHOOL CLIMATE

INVENTORY--FINAL FORM (RSSCI-FF)

## PUPIL CONTROL IDEOLOGY FORM

**Information:**

*On the following pages a number of statements about teaching are presented. Our purpose is to gather information regarding the actual attitudes of educators concerning these statements.*

*You will recognize that the statements are of such a nature that there are no correct or incorrect answers. We are interested only in your frank opinion of them. Your responses will remain confidential, and no individual or school will be named in the report of this study. Your cooperation is greatly appreciated.*

**Instructions:**

*Following are some statements about the school setting. Please indicate the extent to which each statement represents your viewpoint by checking the appropriate response at the right of the statement.*

SA = Strongly Agree  
 A = Agree  
 U = Undecided  
 D = Disagree  
 SD = Strongly Disagree

	SA	A	U	D	SD
1. It is desirable to require pupils to sit in assigned seats during assemblies.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Pupils are usually not capable of solving their problems through logical reasoning.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Directing sarcastic remarks toward a defiant pupil is a good disciplinary technique.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. Beginning teachers are not likely to maintain strict enough control over their pupils.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**PUPIL CONTROL IDEOLOGY FORM (continued)**

	SA	A	U	D	SD
5. Teachers should consider revision of their teaching methods if these are criticized by their pupils.	[ ]	[ ]	[ ]	[ ]	[ ]
6. The best principals give unquestioning support to teachers in disciplining pupils.	[ ]	[ ]	[ ]	[ ]	[ ]
7. Pupils should not be permitted to contradict the statements of a teacher in class.	[ ]	[ ]	[ ]	[ ]	[ ]
8. It is justifiable to have pupils learn many facts about a subject even if they have no immediate application.	[ ]	[ ]	[ ]	[ ]	[ ]
9. Too much pupil time is spent on guidance and activities and too little on academic preparation.	[ ]	[ ]	[ ]	[ ]	[ ]
10. Being friendly with pupils often leads them to become too familiar.	[ ]	[ ]	[ ]	[ ]	[ ]
11. It is more important for pupils to learn to obey rules than that they make their own decisions.	[ ]	[ ]	[ ]	[ ]	[ ]
12. Student governments are a good "safety valve" but should not have much influence on school policy.	[ ]	[ ]	[ ]	[ ]	[ ]
13. Pupils can be trusted to work together without supervision.	[ ]	[ ]	[ ]	[ ]	[ ]
14. If a pupil uses obscene or profane language in school, it must be considered a moral offense.	[ ]	[ ]	[ ]	[ ]	[ ]
15. If pupils are allowed to use the lavatory without getting permission, this privilege will be abused.	[ ]	[ ]	[ ]	[ ]	[ ]
16. A few pupils are just young hoodlums and should be treated accordingly.	[ ]	[ ]	[ ]	[ ]	[ ]

**PUPIL CONTROL IDEOLOGY FORM (continued)**

	SA	A	U	D	SD
17. It is often necessary to remind pupils that their status in school differs from that of teachers.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
18. A pupil who destroys school material or property should be severely punished.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
19. Pupils cannot perceive the difference between democracy and anarchy in the classroom.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
20. Pupils often misbehave in order to make the teacher look bad.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**END**

**ABOUT THE RUTGERS SECONDARY SCHOOL  
CLIMATE INVENTORY--FINAL FORM  
(RSSCI-FF)**

The RSSCI-FF contains 33 items which comprise five subtests. The five subtests are described as follows:

- (1) Principal Support Behavior: Principal works hard, sets example, uses constructive criticism, and is concerned about personal and professional welfare of the staff.

Questions 5, 6, 24, 25, 26, 30, 31

- (2) Principal Control Behavior: Principal is autocratic, domineering, and supervises staff closely.

Questions 7, 12, 14, 19, 20, 32, 33 (scored negatively)

- (3) Teacher Engagement Behavior: Teachers are enthusiastic, have a positive attitude toward work, and respect each other and their students.

Questions 3, 4, 10, 11, 17, 18, 21, 29

- (4) Teacher Frustration Behavior: Teachers are frustrated by interference of non-teaching responsibilities and administrative paperwork and are hostile toward each other.

Questions 1, 2, 8, 9, 16, 23 (scored negatively)

- (5) Teacher Intimacy Behavior: Teachers socialize with each other and share personal closeness.

Questions 15, 22, 27, 28

## RUTGERS SECONDARY SCHOOL CLIMATE INVENTORY--FINAL FORM

**Information:**

*The statements below have no correct or incorrect answers. We are interested in your frank perceptions regarding these statements. Your responses will remain anonymous and no individual or school will be named in the report of this research. Your cooperation is greatly appreciated.*

**Instructions:**

*Following are some statements about the school setting. Please indicate the extent to which each statement characterizes your school by checking the appropriate response at the right of each statement.*

RO = Rarely Occurs  
 SO = Sometimes Occurs  
 OO = Often Occurs  
 VFO = Very Frequently Occurs

	RO	SO	OO	VFO
1. The mannerisms of teachers at this school are annoying.	[ ]	[ ]	[ ]	[ ]
2. Teachers have too many committee requirements.	[ ]	[ ]	[ ]	[ ]
3. Teachers spend time after school with students who have individual problems.	[ ]	[ ]	[ ]	[ ]
4. Teachers are proud of their school.	[ ]	[ ]	[ ]	[ ]
5. The principal sets an example by working hard himself/herself.	[ ]	[ ]	[ ]	[ ]
6. The principal compliments teachers.	[ ]	[ ]	[ ]	[ ]
7. Teacher-principal conferences are dominated by the principal.	[ ]	[ ]	[ ]	[ ]

*RSSCI-FF (continued)*

	RO	SO	OO	VFO
8. Routine duties interfere with the job of teaching.	[ ]	[ ]	[ ]	[ ]
9. Teachers interrupt other faculty members who are talking in staff meetings.	[ ]	[ ]	[ ]	[ ]
10. Student government has an influence on school policy.	[ ]	[ ]	[ ]	[ ]
11. Teachers are friendly with students.	[ ]	[ ]	[ ]	[ ]
12. The principal rules with an iron fist.	[ ]	[ ]	[ ]	[ ]
13. The principal encourages teacher autonomy.	[ ]	[ ]	[ ]	[ ]
14. The principal monitors everything teachers do.	[ ]	[ ]	[ ]	[ ]
15. Teachers' closest friends are other faculty members at this school.	[ ]	[ ]	[ ]	[ ]
16. Administrative paperwork is burdensome at this school.	[ ]	[ ]	[ ]	[ ]
17. Teachers help and support each other.	[ ]	[ ]	[ ]	[ ]
18. Pupils solve their problems through logical reasoning.	[ ]	[ ]	[ ]	[ ]
19. The principal closely checks teacher activities.	[ ]	[ ]	[ ]	[ ]
20. The principal is autocratic.	[ ]	[ ]	[ ]	[ ]
21. The morale of the teachers is high.	[ ]	[ ]	[ ]	[ ]
22. Teachers know the family background of other faculty members.	[ ]	[ ]	[ ]	[ ]
23. Assigned non-teaching duties are excessive.	[ ]	[ ]	[ ]	[ ]
24. The principal goes out of his/her way to help teachers.	[ ]	[ ]	[ ]	[ ]
25. The principal explains his/her reasons for criticism to teachers.	[ ]	[ ]	[ ]	[ ]

*RSSCI-FF (continued)*

	RO	SO	OO	VFO
26. The principal is available after school to help teachers when assistance is needed.	[ ]	[ ]	[ ]	[ ]
27. Teachers invite other faculty members to visit them at home.	[ ]	[ ]	[ ]	[ ]
28. Teachers socialize with each other on a regular basis.	[ ]	[ ]	[ ]	[ ]
29. Teachers really enjoy working here.	[ ]	[ ]	[ ]	[ ]
30. The principal uses constructive criticism.	[ ]	[ ]	[ ]	[ ]
31. The principal looks out for the personal welfare of the faculty.	[ ]	[ ]	[ ]	[ ]
32. The principal supervises teachers closely.	[ ]	[ ]	[ ]	[ ]
33. The principal talks more than listens.	[ ]	[ ]	[ ]	[ ]

**END**

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