EFFECTS OF ELEMENTARY GENERAL EDUCATION/SPECIAL EDUCATION TEAM TEACHING ON STUDENTS' ACADEMIC GAINS, SOCIAL COMPETENCE, AND SCHOOL ADJUSTMENT

By

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ABSTRACT

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Michigan's current system of delivery of education to disabled students is being called into question by many who are concerned with education. In particular, considerable interest and professional controversy has centered around the practice of labeling and providing special education services to students with mild disabilities (learning disabled, educable mentally impaired, and emotional impaired).

The Regular Education Initiative (REI) is a growing movement to merge general and special education into a unified system of instruction. The essence of the REI is the shared responsibility for students with learning problems by special education and general education personnel.

Teaching teams of general educators and special educators has been suggested in the literature as a method of integrating students with mild handicaps into general education classrooms. There is a paucity of data, however, about the academic and social effects on general and special education students when such teaching teams are employed as an instructional delivery model.

A quasi-experimental research design was used to gather data on the effects of the use of general education/special education teaching teams. The sample included 136 students in grade 3-5 in two elementary schools in western Michigan. Both the experimental group and the control group included 34 general education students and 34 special education students. A pretest and posttest were used to measure reading achievement, math achievement, teacher-preferred social behavior, peer-preferred social behavior, and school adjustment behavior.

Results indicated teamed students, both general education and special education, made significantly more gains in teacher-preferred social behavior and school adjustment than did nonteamed students. The two groups were not significantly different in math, reading, or peer-preferred social behavior.

To my nephew, Kyle William Moore, in the hope that options will always exist for him

and to Frank, my husband and best friend

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CHAPTER I

THE PROBLEM

Introduction

The system by which the school age population with disabilities in Michigan is provided educational opportunity is the result of a progression of steps toward normalization which has been occurring for decades. The impetus for this progression toward normalization for students with disabilities has come from a variety of sources including parents, educators, the courts, and federal and state officials. In Michigan, there has been progression from a time when most students with disabilities were totally excluded from the educational process to the present, where an elaborate system of regulation governs the delivery of educational services to these students.

Michigan's current system of delivery of education to disabled students is being called into question by many who are concerned with education. In particular, considerable interest and professional controversy has centered around the practice of labeling and providing special education services to students with mild disabilities. One of the bases for the controversy regarding service delivery has come from efficacy research, studies of the effectiveness of different systems

for delivering educational services to students with disabilities.

The efficacy researchers have identified several problematic issues with regard to special education: (a) the over-identification of students as disabled due to flawed classification systems; (b) the inefficiency of operating a dual system for general and special education which has lead to fragmentation and lack of coordination; (c) the tendency to overlook general education classrooms as a possible site for improvement efforts, and; (d) a lack of evidence that special education programming produces greater academic and/or social gains for students than if they received no special programming (Affleck, Madge, Adams, & Lowenbraun, 1988; Gartner & Lipsky, 1987; Lilly, 1986; Reynolds, Wang, & Walberg, 1987; Sapon-Shevin, 1987).

Those who use these efficacy studies to question the current separate systems for special and regular education base the rationale on two major premises. The first is that the instructional needs of students do not warrant the operation of a dual system. Stainback and Stainback (1987) contend that:

> ...there are not- as implied by a dual system- two distinctly different types of students, that is those who are special and those who are regular. Rather all students are unique individuals, each with his/her own set of physical, intellectual, and psychological characteristics (p. 103).

The second major premise on which the rationale for questioning the current separate systems for special and

general education is based centers on the inefficiency of operating a dual system. The dual system has created the expensive and time consuming necessity of classifying students. In addition, both personnel and financial resources are necessarily divided in a dual system which makes collaboration cumbersome.

An Initiative for Change

Studies of the efficacy of special education programming date back to the early 30's (Lloyd & Gambatese, 1991). Since the passage of Public Law 94-142, the Education of All Handicapped Children (EHA) (1975), which was retitled Individuals With Disabilities Act (IDEA) when it was reauthorized in 1990, many have raised questions about education of students with disabilities. One of the most important events in the raising of such questions was a meeting held at Wingspread, a conference center near Racine, Wisconsin, in September of 1981. Conference participants were asked to address a number of questions about the relationship between public policy and the education of students with disabilities:

1. What does the current system for allocating resources and serving handicapped children look like and how does it work?
2. What do we know about the effectiveness of current practice, and to what extent is best practice a part of current practice?
3. How can public policy contribute to the quality of teaching in programs for handicapped children and youth?
4. How is the special education system actually or potentially integrated with other systems?

> 5. Is there a need for general restructuring of the special education area and of its relations with "regular" education? What lessons can be learned from the experience of implementing legislation for other special populations which are applicable to the special education area (Lloyd & Gambatese, 1991, p. 7)?

At the Wingspread conference, Reynolds and Wang (1983) identified many of the aspects of special education that would become issues of concern as a part of the Regular Education Initiative: indefensible labeling of students, inappropriate funding systems, development of miniature bureaucracies serving each of various categories of students, adaption of regular education learning environments, and extension of services to children with learning problems who are not officially identified as handicapped (Lloyd & Gambatese, 1991). At a later Wingspread conference in 1985, Madeline Will, the then Assistant Secretary of Education for the U.S. Department of Education, called for regular and special educators to share the responsibility of teaching students with learning problems.

Subsequent to the 1985 Wingspread conference, a plethora of position statements, papers, and books have appeared which deal with the Regular Education Initiative (REI), the rubric under which the many proposals for changes in the special education system have been advanced. The four most significant papers expressing REI appear to be: a) Madeline Will's 1985 speech at the Wingspread conference which was later published in Exceptional Children in February, 1986; b) a position paper by Margaret C. Wang (formerly with the

University of Pittsburgh and now at Temple University), Maynard C. Reynolds (University of Minnesota), and Herbert J. Walberg (University of Illinois at Chicago); c) a joint statement by the National Coalition of Advocates for Students and the National Association of School Psychologists, and; d) an article by M. Stephen Lilly (Dean, College of Education, Washington State University) (Council for Exceptional Children- Teacher Education Division, 1986).

The Regular Education Initiative Defined

Madeline Will's 1985 speech at the Wingspread conference came about as the result of an Office of Special Education and Rehabilitation Services (OSERS) task force which was formed to assess the status of the nation's programs for helping students with learning problems. "...the term 'learning problems' is used broadly to address children who are having learning difficulties, including those who are learning slowly; those with behavioral problems; and perhaps, as we improve our knowledge, those with more severe disabilities" (Will, 1986b, p. v).

Will's basic theme is that, in spite of the achievements of special programs, problems have emerged which create obstacles to effective education of students with learning problems. She discusses "...four significant obstacles to the most effective education possible for students with learning problems" (p. 5). The first obstacle Will discusses is the

fragmented approach to many different, but related, learning problems. She is referring to the program structure based on preconceived definitions of eligibility rather than on individual student need. The undesirable result of this eligibility criteria system is that many children who are not learning effectively, but do not qualify for special services given the eligibility criteria, are not receiving appropriate assistance.

The second obstacle cited by Will is the dual system, where "...separate administrative arrangements for special programs contribute to a lack of coordination, raise questions about leadership, and obscure lines of accountability within schools" (p. 6). This problem is further compounded when special education teachers work individually or with small groups of students in both physical and curricular isolation from the general education teacher and classroom. The result is often that special education instruction does not help the child to master the curriculum taking place in the general education classroom.

The stigmatization of students is the third obstacle to effective education of students with learning problems cited by Will. When students are labeled and separated from their non-handicapped peers, the resultant stigmatization and poor self esteem often lead to low expectations for success, failure to persist on tasks, the belief that failures are

caused by personal inadequacies, and a continued failure to learn effectively.

The last obstacle Will discusses is the placement decision as a battleground between the school and the parents of the special needs child. "Parents naturally want the best for their children, a desire that leads some parents to interpret rigid rules as indications that school officials are unwilling to help" (p.7).

According to Will, the identified obstacles to educating students with learning problems can be alleviated by adapting the regular classroom to make it possible for the student to learn in that environment. This solution recognizes the conceptual fallacy of the pull-out approach to special education: "...that poor performance in learning can be understood solely in terms of deficiencies in the student rather than deficiencies in the learning environment" (p. 9).

The OSERS task force also identified obstacles in general education and some strategies which may be useful in overcoming these obstacles. These strategies are: 1) increase instructional time so that students who learn more slowly are allowed to move through the curriculum at a different pace, and receive more structure and more supervision time; 2) provide support systems for teachers because students with learning problems demand more of teachers in terms of time and specialized assessment and teaching strategies; 3) empower principals to control all programs and resources at the

building level so that the principal has the ability to blend programs and services in the building to bring together what is required to help the student in the regular classroom, and lastly; 4) bring new instructional approaches into the regular education classroom, including successful instructional approaches developed and used by special programs to help students with learning problems which emphasize productive learning experiences.

In Will's conclusion, she calls for experimentation in the delivery of education to problem learners which stays within the boundaries of student and parent rights as set forth under PL 94-142.

Wang, Reynolds, and Walberg (1986) cite two barriers which block the full promise of P.L. 94-142. The first is the "...continuing segregation of many students in disjointed programs..." (p. 26). The pull-out approach has neglected the larger problem of regular classroom learning environments which have failed to accommodate the educational needs of many students. The consequences of the pull-out approach, according the authors, include discontinuity and interruption in instruction for teachers and students, loss of control by school district leadership over specialized programs, and the fostering of narrow thinking about the instructional programming appropriate for students with disabilities.

The second barrier to the full promise of P.L. 94-142, as identified by these authors, is the inconsistent system for

classifying and placing these students. Inconsistent classification practices and services to students has been linked to state differences in eligibility criteria and the influence of factors other than the children's needs on diagnostic and placement teams. These factors include, "...space and professional staff availability; competing programs and services; and federal, state, and local guidelines and pressures" (p. 27).

Wang, Reynolds, and Walberg propose a two-part initiative to attain the objective of providing an effective education for all students. The first recommendation is to join best practice from both general and special education into a coordinated educational delivery system. The second part of the initiative is a call for experimental trials of more integrated forms of education through the collaboration of the federal government with state education agencies and local school districts.

The third seminal paper regarding REI, the joint statement by the National Coalition of Advocates for Students (NCAS) and the National Association of School Psychologists (NASP), recognized "...that serious problems have been encountered as school districts strive to meet these mandates [P.L. 94-142] and that quality education is still an elusive goal" (p. 18).

The problem issues identified by the authors deal with classification and placement of students. With regard to the

classification issue, the authors cite "...inadequate measurement technologies which focus on labels for placement rather than providing information for program development" (p. 18). Other problems cited as originating in the classification system include the placement of students in special classrooms based solely on the eligibility label which often prevents any more meaningful understanding of the student's educational needs; the high cost of current assessment practices, both in personnel and financial resources, both of which could be better used to provide effective programming for students, and; a decreased willingness on the part of general educators to adapt to the special needs of students when special needs students are removed from their responsibility.

NCAS and NASP propose a national initiative to meet the educational needs of all children. They propose experimentation with alternatives to the current classification system and the piloting of alternative service delivery models. They encourage alternative service delivery models which stay within the current funding system so that resources for special education identified students are protected.

A fourth seminal paper which gives REI expression was written by M. Stephen Lilly (1986) and calls for, like many others, a fundamental change in the delivery of educational services to children who have difficulty learning and behaving

in school, including the mildly handicapped. He bases the need for fundamental change on problems in labeling, diagnosis, service delivery, instructional models, outcomes for students, and the mistaken notion that special education "...is a generally more responsive and effective system than general education" (p. 10).

Lilly, too, calls for alternative service delivery models, but he differs from others in that he does not call for general education to become more like special education, but rather that special services be delivered in the general education classroom. He writes, "...we need supportive services for children who have difficulty learning and behaving in school but, for virtually all such students, we need not and should not offer these services through special education" (p.10).

A Synthesis

Several basic themes are evident in the literature that support the goals of the Regular Education Initiative and other literature critical of the model by which we currently deliver instruction to students who are identified as eligible for special education services. These themes are: 1) students have a fundamental right to receive educational services appropriate to their needs; 2) the current delivery system for providing educational services to students with disabilities has not proven to be effective, and; 3) any alternative

service delivery models for students with disabilities should take place within the general education classroom setting.

Problem

Proposals by proponents of the Regular Education Initiative call for reform of special education practice by creating a more integrated system of general education that better serves mildly disabled students in the general education classroom. The four alternatives to traditional practice in special education service delivery most often proposed by proponents of REI are: (1) pre-referral strategies (Evans, 1990; Fuchs, Bahr, Fernstrom, & Stecher, 1990; Pugach & Johnson, 1990; Will, 1986b), (2) restructuring the general education classroom (Garter & Lipsky, 1990; Sapon-Shevin, 1990; Wang, Peverly, & Randolf, 1984; Will, 1986b), (3) cooperative consultation (Harris, 1990; Huefner, 1988; Johnson & Pugach, 1991; Phillips & McCullough, 1990; Schulte, Osborn, & McKinney, 1990; Tindal, Shinn, & Rodden-Nord, 1990) and, (4) team teaching (Adamson, Matthews, & Schuller, 1990; Jenkins & Heinan, 1989; Thousand & Villa, 1990).

Each of these four alternatives are in need of further investigation to assess their feasibility, efficacy, and likely impact, both positive and negative, on special and general education students. Team teaching is the alternative to the current special education delivery system which is most fundamentally different from current practice and yet most

answers REI proponents' areas of concern. This alternative is of particular interest because: (1) Special education personnel would continue to provide direct instruction to special education identified students, and in addition would allow special education personnel to work with general education students who are not achieving academically at a satisfactory level or rate but who do not qualify for special education services; (2) The partial reimbursement of the excess cost of educating special education students to the local education agency from the state would not change, and; (3) The special education teacher would be available to the general education teacher on a full-time basis to assist in curriculum adaption, alternative instructional techniques, and the management of student behavior. Thousand and Villa (1990) provide a description of a teaching team:

> A teaching team is an organizational and instructional arrangement of two or more members of the school...who distribute among themselves planning, instructional, and evaluation responsibilities for an extended period of time (p. 152-153).

The overall purpose of assembling teaching teams is to increase the potential for individualizing instruction and enabling all students to be educated with their same-age peers within general education settings. When a teaching team is used, a lower student/teacher ratio results which allows more individual attention to student needs and more opportunities for student response in learning activities. Teaching teams also allow greater opportunity to make use of the unique,

diverse, and specialized knowledge, skills, and instructional approaches of the team members, (Bauwens, Hourcade, & Friend, 1989) and allows increased grouping and scheduling flexibility.

The problem of insufficient data to assess the feasibility, efficacy, and impact on both general and special education students of team teaching at the elementary level suggests a significant deficiency in the research literature. The reported research has dealt primarily with secondary students and/or general education students. Additional research is necessary to ascertain whether teaching teams of special and general education teachers have an effect on the academic achievement and social skills and school adjustment of students.

Purpose of Study

The researcher's purpose in the study was to make comparisons between students in an elementary school where mildly disabled students are fully integrated into general education classrooms taught by teaching teams of special and general educators and students in an elementary school where special education students were placed in special education classrooms for instruction. More specifically, the researcher sought to determine whether the teaming strategy had an effect on: (1) special and general education students' academic achievement in reading and math, and (2) special and

general education students' social competence and school adjustment. This research is necessary in order to make the appropriate decision as to whether special educator/ general educator teaching teams should be used.

In order to investigate the effect of general/special educator teaching teams on student academic achievement and social skills, the following research questions were posed.

Research Questions

1. Is there an effect of student type (general education or special education) or placement (team-taught or not team-taught) on the math achievement of 3rd, 4th, and 5th grade students? Does the effect of placement depend on student type?

2. Is there an effect of student type (general education or special education) or placement (team-taught or not team-taught) on the reading achievement of 3rd, 4th, and 5th grade students? Does the effect of placement depend on student type?

3. Is there an effect of student type (general education or special education) or placement (team-taught or not team-taught) on the teacher-preferred social behavior of 3rd, 4th, and 5th grade students? Does the effect of placement depend on student type?

4. Is there an effect of student type (general education or special education) or placement (team-taught or not team-

taught) on the peer-preferred social behavior of 3rd, 4th, and 5th grade students? Does the effect of placement depend on student type?

5. Is there an effect of student type (general education or special education) or placement (team-taught or not team-taught) on the school adjustment of 3rd, 4th, and 5th grade students? Does the effect of placement depend on student type?

Hypotheses

Ho1 There will be no difference in math achievement between the special education students who receive instruction in the team-taught classroom and those who receive instruction in a special education classroom.

Ho2 There will be no difference in math achievement between the general education students in the team-taught classroom and those in a general education classroom where special education eligible students are pulled out for instruction.

Ho3 The effect of treatment (team-taught or pull-out) on math achievement will not depend on the type of student (general education or special education).

Ho4 There will be no difference in reading achievement between the special education students who receive instruction in the team-taught classroom and those who receive instruction in a special education classroom.

Ho5 There will be no difference in reading achievement between the general education students in the team-taught classroom and those in a general education classroom where special education eligible students are pulled out for instruction.

Ho6 The effect of treatment (team-taught or pull-out) on reading achievement will not depend on the type of student (general education or special education).

Ho7 There will be no difference in teacher-preferred social behavior between the special education students who receive instruction in the team-taught classroom and those who receive instruction in a special education classroom.

Ho8 There will be no difference in teacher-preferred social behavior between the general education students in the team-taught classroom and those in a general education classroom where special education eligible students are pulled out for instruction.

Ho9 The effect of treatment (team-taught or pull-out) on teacher-preferred social behavior will not depend on the type of student (general education or special education).

Ho10 There will be no difference in peer-preferred social behavior between the special education students who receive instruction in the team-taught classroom and those who receive instruction in a special education classroom.

Ho11 There will be no difference in peer-preferred social behavior between the general education students in the

team-taught classroom and those in a general education classroom where special education eligible students are pulled out for instruction.

Ho12 The effect of treatment (team-taught or pull-out) on peer-preferred social behavior will not depend on the type of student (general education or special education).

Ho13 There will be no difference in school adjustment behavior between the special education students who receive instruction in the team-taught classroom and those who receive instruction in a special education classroom.

Ho14 There will be no difference in school adjustment behavior between the general education students in the team-taught classroom and those in a general education classroom where special education eligible students are pulled out for instruction.

Ho15 The effect of treatment (team-taught or pull-out) on school adjustment behavior will not depend on the type of student (general education or special education).

Significance of Study

This study is important in several aspects. Proponents of the Regular Education Initiative have called for the exploration of alternative service delivery models for students who are mildly disabled. Those who question whether the needs of students with mild disabilities can be adequately met in any instructional arrangement other than special

education classrooms have demanded that changes to the current system be based on research. This study may contribute valuable information regarding the feasibility, efficacy, and likely impact of the use of general education/special education teaching teams on general and special education students. More specifically, information may be gained on the effects of the use of teaching teams on the academic performance in reading and math for both special and general education students. In addition, information may be gained regarding whether special and general education students' interpersonal social competence and school adjustment is effected by their placement with a teaching team. The results of this study may have an impact on where special education students receive their education--general education classrooms or special education classrooms.

Limitations and Delimitations of Study

Limitations

Two possible limitations may influence the interpretation of the findings of this study. They are: (1) the use of a quasi-experimental research design as opposed to a true research design, and (2) lack of triangulation.

The purpose of quasi-experimental research is to approximate the conditions of the true experiment in a setting which does not allow the control and/or manipulation of all relevant variables. Specifically, all possible confounding

variables cannot be identified and/or controlled for. The researcher used a nonrandomized control-group pretest-posttest design. The use of a control group helps to insure against mistaking effects of history, pretesting, maturation, and instrumentation (see Definition of Terms), for the main-effects of X (team-teaching); but the possibility always exists that some critical difference, not reflected in the pretest, was operating to contaminate the posttest data. An advantage to the use of the quasi-experimental design is that it is possible to deal with intact classes and does not disrupt the school's program (Isaac & Michael, 1989). Because it was necessary to disrupt the educational process of the subjects as little as possible, other modes of data collection were not used.

Delimitations

Two delimitations in generalizability of results are noted. They are: (1) Although the population of 3rd, 4th, and 5th grade students in the state of Michigan is 357,289 (Fourth Friday 1991 count per Michigan Department of Education), data gathered represented only a small sample of the population, namely, n=68 for the control group and n=68 for the experimental group in two schools, for a total of 136. Generalizability to other students at these grade levels is limited. (2) Data represented only grades 3-5 students. Generalizability to other grade levels is limited.

Definition of Terms

Cooperative consultation- A process to enable education professionals with differing areas of expertise to work together to plan and conduct educational programming for a diverse group of students who are learning together in educational settings.

Disabled- Used interchangeably with handicapped in this study. When the Education for All Handicapped Children (EHA) (PL 94-142) was reauthorized by Congress in 1990, the name of the act was changed to Individuals With Disabilities Act (IDEA) (PL 101-476). The term 'handicapped' is gradually being replaced with the term 'disabled' in the literature and when special education is discussed.

General education- Used interchangeably with regular education. Both terms mean the typical education which goes on in grades K-12.

Handicapped- Used interchangeably with disabled. See Disabled.

History- With regard to research; Specific events occurring between the first and second measurement in addition to the experimental variable.

Instrumentation- With regard to research; Changes in obtained measurement due to changes in instrument calibration or changes in observers or judges.

Integration- Combining the resources of special education and general education by servicing children with mild disabilities in the general classroom.

Maturation- With regard to research; Processes within the subjects operating as a function of the passage of time (i.e., growing older, hungrier, fatigued, or less attentive).

Mildly disabled- Those special education students who are typically educated within local school districts, in general education facilities, in special education classrooms. For this study, the term includes learning disabled, educable mentally impaired, and emotionally impaired students.

Pre-referral strategies- The modification of instruction or classroom management before referral to special education to better accommodate a difficult to teach student without disabilities.

Pull-out- Any specially funded program separate from general education in which the student leaves the general classroom to attend. For purposes of this study, pull-out applies to special education students only.

Regular education- Used interchangeably with general education. See General education.

Regular Education Initiative (REI)- Describes the movement to merge general, remedial, and special education into a coherent system of instructional support.

Special education eligible- Indicating that a student has met the eligibility criteria as defined by the state of Michigan special education rules in at least one disability area, and has been declared eligible for special education services at an Individual Educational Planning (IEP) meeting.

Special services- Interchangeable with special education and includes all programs and services available to special education eligible students.

Teaching team- An organizational and instructional arrangement of two professionals who distribute between themselves planning, instructional and evaluation responsibilities to provide education to general and mildly disabled students in the general education classroom. In this study, a teaching team consisted of one general education teacher and one special education teacher. The terms 'teaming' and 'team teaching' are used to label the activities of the teaching team.

Organization of the Dissertation

Chapter 2 will present a review of the literature on team teaching as a general education phenomenon and as a technique for integrating special education students into general education classrooms. Chapter 3 will describe the methodology employed to answer the study's research questions and will include descriptive information about the teaching teams in the experimental group of this study. Presentation and analysis of data will be included in Chapter 4. Chapter 5 will provide a summary as well as discussion of the results, conclusions, and recommendations.

CHAPTER II

LITERATURE REVIEW

Team Teaching as a Durable Innovation

The use of teaching teams is certainly not a recent development in the delivery of instruction to students. The term 'team teaching' first appeared in a 1957 reference in Education Index (Dean, 1965, p. D&W-1A).

> Born in a time of acute teacher shortage and a national concern for improving scientific and technical education... team teaching has survived both a shift from teacher shortage to teacher surplus and a change in the national consensus concerning the proper outcomes of education. Team teaching, in short, has proved to be an extraordinarily resilient innovation (Armstrong, 1977, p. 65).

In addition, the basic conception of what constitutes team teaching has changed very little since its inception during the teacher shortage of the 1950's. In 1966, Davis defined team teaching as:

> ...any form of teaching in which two or more teachers regularly and purposefully share responsibility for the planning, presentation, and evaluation of lessons for two or more classes of students (p. 11).

In 1990, Thousand and Villa defined a teaching team as:

> ...an organizational and instructional arrangement of two or more members of the school and greater community who distribute among themselves planning, instructional, and evaluation responsibilities for the same students on a regular basis for an extended period of time (pp. 152-153).

Although the basic conception of what constitutes a teaching team has remained fairly consistent, many writers have attempted to provide a more rigid definition which specifies such requirements as the composition of the team, functions and tasks of the team, ability range of students served, the team's place in the organizational hierarchy of the school, and the breadth of the curriculum the team is responsible for delivering. A description of the concept which more fully reflects the spirit which may be inherent in what is being defined is offered by Dean and Witherspoon:

> The heart of the concept of team teaching lies not in the details of structure and organization but more in the essential spirit of cooperative planning, constant collaboration, close unity, unrestrained communication, and sincere sharing. It is reflected not in a group of individuals articulating together, but rather in a group which is a single, unified team. Inherent in the plan is an increased degree of flexibility for teacher responsibility, grouping policies and practices, and size of groups, and an invigorating spirit of freedom and opportunity to revamp programs to meet the educational needs of children. In a sense, it might be said that the proponents of the movement question restrictions of the past, and hold that school administration exists primarily as a service medium, not as a control function (1965, p.4).

Why Team Teach?

Although research in the area of team teaching is sketchy at best, many have written about the benefits to both teachers and students when this instructional arrangement is employed. Initial advocates of team teaching (Bair & Woodward, 1964; Shaplin & Olds, 1964) note that diagnostic, planning and evaluative procedures developed by a team of teachers are

generally superior to those developed by a single teacher. Bair and Woodward based their comments on their evaluation of selected team teaching projects throughout the United States through the use of a survey.

Goodlad concluded the following after heading an eight-year study focusing on the restructuring of American schools which included 1,350 teachers; 8,624 parents; and 17,136 students in 1,106 classrooms at all three levels of public education (i.e., elementary, middle school/junior high, and secondary):

> To the unrelenting advocates of departmentalization, on the one hand, and the self-contained classroom, on the other, my response has to be, "A plague on both your houses." Surely there are creative ways to secure some of the advantages of both departmentalization and self-contained classrooms without the weakness of either (1984, p. 308).

Although Goodlad did not specifically call for the use of teaching teams, he found fault with educational practices that could not adequately be corrected unless teachers were organized into teams. He based his case on both curricular matters and student welfare. Goodlad called for either smaller schools or "schools-within-schools" to effectively reduce the size of elementary schools with more than 300 students, more flexible approaches to meeting student needs, and more diversified teaching. In addition, he advocated for more flexible scheduling of instructional experiences, more multi-aged groupings of students, and more mastery learning.

Goodlad is not alone in calling for educational improvements that can occur only if teachers work in teams. Sizer (1984) found traditional organizational patterns too inflexible to provide a truly appropriate education for students. Although Sizer's conclusions are based on his observations in secondary schools, his conclusions can be applied to the elementary school as well. Sizer advocates for more integration of subject matter, more cross-age grouping of students (as opposed to tracking), and bigger blocks of time to increase flexibility.

Erb (1989) has observed team organization in over two dozen schools and argues that:

> ...team organization provides the means by which teachers can gain greater control over the teaching-learning environment. In this manner, teachers can more productively respond to diverse learner needs. Consequently, teaming has greater potential for improving the instruction of students than any of the "effective" teaching formulas being imposed on teachers by well-meaning but overzealous reformers" (p. 10).

Erb discusses three factors which are associated with teacher effectiveness: autonomy, collegiality, and efficacy. Affording autonomy to teachers is inherent in the teaming arrangement in that the team becomes the decision making body for a group of students. The team makes ongoing decisions regarding periods for the day, week, marking period, etc.; and the most appropriate ways to meet the needs of diverse learners.

The second factor associated with teacher effectiveness which can be facilitated through the use of team teaching is

collegiality. After an extensive review of the literature on teaming, Arhar, Johnston, and Markle (1988) claim that while teaming arrangements are not sufficient to cause collaboration among teachers, they are an essential prerequisite for such cooperation to occur. Tye and Tye (1984) propose that schools cannot be improved as long as teachers remain isolated from each other in their work settings. Their research demonstrated that collegial interdependence among teachers, which in turn lead to shared decision making, is necessary to the movement toward effective schools. Little (1982), in a study of collegiality in school settings in schools which were identified as successful, found teachers who valued and participated in the norms of collegiality and continuous improvement. They engaged in a greater range of professional interactions such as structured observation, shared planning and talk about instruction. They did so with greater frequency, in more locations, and with a more concrete and precise shared language than did teachers in schools that were identified as less successful.

Erb's third factor associated with teacher effectiveness which can be facilitated through the use of team teaching is efficacy. Doda, writing in Ashton and Webb (1986), found that teachers who were organized into teams showed higher levels of confidence in their own sense of teaching competence when compared to teachers who were not teamed. Ashton and Webb's (1986) study demonstrated the empirical link between team

organization and improved student achievement, mediated through teacher's sense of efficacy.

Erb found four differences between the ways teamed and nonteamed teachers function.

> First, teamed teachers engage in more frequent and more in-depth professional discussions. Not only do these discussions occur more often with colleagues concerning students, instruction, curriculum, and staff development, but also they occur more often with counselors, special educators, administrators, and parents. Second, this increased communication leads to more teacher involvement in the decision making processes of the school, which are more collegial than those found in schools in which teachers tend to be isolated from each other. Third, not only do teachers have more involvement in the process of decision making, but also they tend to have greater influence over those decisions that most directly effect their teaching. Finally, teachers find that working on teams makes teaching more rewarding (pp. 12-13).

Characteristics of Teaching Teams

To further clarify the concept of the team approach, Golin and Ducanis (1981) identified a number of general characteristics common to teams. Nine characteristics, which are further divided into three main categories- composition, functions, and task- are identified.

Composition *A team consists of two or more individuals.* "The two member team has many of the same needs and dynamics found in larger configurations, but the interactions may be less complex than those of teams with seven or eight members" (p.6).

Communication may be direct and face to face or indirect. Although most teams will meet regularly and engage in direct

and immediate communication, the team concept does not exclude groups that meet only occasionally.

There is an identifiable leader. The form that leadership might take is unspecified because the leadership of the team may shift due to the changing nature of the task.

Functions *Teams function both within and between organizational settings.* However, the most common type of team finds its support system for operation in a parent organization. The parent organization for the teaching team would be the school system itself.

Roles of participants are defined. A group in which each person can and does fill all roles is not a team.

> In an integrated classroom with instruction provided through a team teaching cooperative arrangement, the general and special educators jointly plan and teach academic subject content to all students. However, at various times one teacher might assume primary responsibility for specific types of instruction or portions or the curriculum. For example, during a science lesson, the special educator might introduce new vocabulary to the entire class using direct instruction procedures. This might be followed by the general education teacher presenting the remainder of the day's science lesson, while the special education teacher monitors student acquisition of the content (Bauwens, Hourcade, & Friend, 1989, p.19).

Teams collaborate. Because the diverse skills and expertise of team members are combined to provide solutions to specific problems, the teaching team is a collaborative endeavor.

There are specific protocols of operation. The protocol of operation is empirically identifiable as each team develops certain rules of operation, certain ways of proceeding to accomplish its task.

Task *The team is child centered.* The focus of the team's efforts and the reason for the team's existence are the students the team serves.

The team is task oriented. The main focus is on the task to be completed rather than on other aspects of team functioning.

Golin and Ducanis suggest that these nine characteristics be used as tentative criteria for consideration in identifying a team. Certainly other attributes are included by others.

Giangreco (1991) lists eight characteristics of effective teams:

(1) have two or more members;

(2) develop a shared framework and purposefully pursue a unified set of goals;

(3) have members who possess various skills and may serve different functions;

(4) engage in problem solving and collaborative activities;

(5) share and allocate resources to assist student attainment of goals;

(6) engage in participatory interactions that complement and enhance group effectiveness;

(7) serve a collective evaluation function for each other through feedback loops; and,

(8) judge success or failure by group performance relative to a unified set of goals.

Golin & Ducanis and Giangreco provide listings of characteristics which have many common elements, including composition, functions, and task.

Team Teaching as a Means to Integrate Mildly Disabled Students

Although team teaching is an instructional arrangement which became popular in the 1950's (Bair & Woodward, 1964; Shaplin & Olds, 1964) and has been used at all levels from the primary grades through the university level, the use of team teaching as a means of integrating students who are disabled into general education classrooms is a relatively new development. The pioneers of the teaming movement could hardly have considered the place of special education teachers and their students in this new educational arrangement because it was not until the 1950's when some began to question the appropriateness of special classroom placement for children with handicaps. Lloyd and Gambatese (1991) provide a chronologically arranged table listing "Historical Events Reflecting Ambivalence about Separate or Joint Schooling of Handicapped and Non-Handicapped Students." That part of the table listing historical events beginning in the 1950's, when team teaching first received widespread interest, to the recent past is reproduced here:

Table 1

HISTORICAL EVENTS REFLECTING AMBIVALENCE ABOUT SEPARATE OR JOINT SCHOOLING OF HANDICAPPED AND NON-HANDICAPPED STUDENTS

1950's-70's	Studies compared the self-esteem, social acceptance, and achievement of children with handicaps in the mainstream to those in special education classrooms.
1962	G. O. Johnson's review of literature concluded that separate classes were of little academic value to pupils with mild retardation.
1966	Bureau of Education for the Handicapped was established within the U.S. Office of Education to promote the development of better programs for pupils with handicaps.
1968	Lloyd Dunn's article ("Special Education for the mildly retarded--Is much of it Justifiable?") accompanied widespread reevaluation of the establishment of special classes.
1972	*Pennsylvania Association for Retarded Citizens v. Commonwealth of Pennsylvania,* a class action suit brought on behalf of children in state-operated institutions, was settled by a consent agreement. The agreement required that the state must provide access to free appropriate public education for retarded children of Pennsylvania.
1972	*Mills v. Board of Education of District of Columbia* led to a court order that required the public schools to provide for pupils with handicaps even if they did not fit the currently available array of services.
1975	U.S. Congress passed Public Law 94-142, the Education of All Handicapped Children Act which legally specified a preference for the least restrictive environment.
1977	National Education Association Teachers Rights Committee formed a panel to investigate the experiences of selected school systems in carrying out PL 94-142 and state special education laws.

(Lloyd & Gambatese, 1991, p. 10)

The most significant event, with regard to *where* special education students are educated, was the passage of Public Law 94-142 by the U.S. Congress in 1975. PL 94-142 was the first federal mandate which defined the least restrictive environment and specified it as the preferred placement for all school age children.

Section 612(5) of PL 94-142 requires the states to establish:

> ...procedures to ensure that, to the maximum extent appropriate, handicapped children, including children in public or private institutions or other care facilities, are educated with children who are not handicapped and that special classes, separate schooling, or other removal of handicapped children from the regular educational environment occurs only when the nature or severity of the handicap is such that education in regular classes with the use of supplemental aids cannot be achieved satisfactorily.

Section 614(C)(iv) requires local education agencies to provide full educational opportunities to all handicapped children, including:

> ...to the maximum extent practicable and consistent with the provisions of section 612(5)(B), the provision of special services to enable such children to participate in regular educational programs.

With the passage of PL 94-142, the debate regarding the extent to which atypical learners should be, and can be, accommodated within regular education classrooms began. There are those that would hail PL 94-142 as *the* legislation which guarantees the civil rights of students with handicaps. There are others who would argue that PL 94-142 has fallen short in its promise of maximum access to regular education programs

for students with disabilities. Walker (1987), one of the drafters of PL 94-142, wryly noted:

> If the law has been massively successful in assigning responsibility for students and setting up mechanisms to assure that schools carry out these responsibilities, it has been less successful in removing barriers between general and special education. It did not anticipate that the artifice of delivery systems in schools might drive the maintenance of separate services and keep students from the mainstream (p. 102).

A report from a former Assistant Secretary, Office of Special Education and Rehabilitative Services points out four unintended results of PL 94-142: (a) *a fragmented approach* ("Many students who require help and are not learning effectively fall through the cracks of a program structure based on preconceived ideas of eligibility..."); (b) *a dual system* ("The separate administrative arrangements for special program contribute to a lack of coordination, raise questions about leadership, cloud areas of responsibility, and obscure lines of accountability within schools."); (c) *stigmatization of students* (producing in students "low expectations of success, failure to persist on tasks, the belief that failures are caused by personal inadequacies, and a continued failure to learn effectively."); and (d) *placement decisions becoming a battleground between parents and schools* ("...a potential partnership is turned into a series of adversarial, hit-and-run encounters.") (Will, 1986b, pp. 5-7).

It has been suggested that the most effective way for the educational system to respond to these deficiencies is a philosophical as well as a pragmatic merger between general

and special education (Stainback & Stainback, 1984). Of the four most proposed models for facilitating this merger (pre-referral strategies, restructuring the general education classroom, cooperative consultation, and cooperative teaching), cooperative teaching holds great potential for enhanced educational integration of students of widely differing academic abilities, including those students eligible for special education services (Thousand & Villa, 1990).

> ...it may be that the sheer numbers of these high-need students, combined with the levels of intensity of educational services they require, may demand that the multidisciplinary team be involved in direct program implementation as well as initial planning and development. It may be difficult or impossible for the general education teacher alone to assume primary responsibility for the totality of program implementation (Bauwens, Hourcade, & Friend, 1989, p. 17).

The use of teaching teams of general and special education teachers would facilitate the use of all four models for merging special and general education, as pre-referral strategies, restructuring the general education classroom, and cooperative consultation would be encouraged naturally through the cooperation of team members in the teaming situation.

The reporting and analysis of research on general education/special education teaching teams is minimal. The advantages to teaming for special education and general education provided in the literature are much the same as advantages noted for general education teaming with a few

additions specific to students with disabilities. Giangreco (1991) notes that:

> Team planning, implementation, evaluation, and adjustment of educational programs for students with handicapping conditions: (1) is congruent with the values imbedded in our laws (e.g. PL 101-476; Section 504; The American's with Disabilities Act of 1990) and logic presented in the literature; (2) can draw upon varied skills and knowledge of team members from different disciplines; (3) can help solve complex challenges presented by students; (4) can help avoid errors in individual judgement; (5) can be designed to maximize the use of scarce resources (e.g. specialists, funds); and, (6) can provide opportunities for members to learn and grow (p. 1).

Garver and Papania (1982), a general education/special education team of teachers in Lawrence, NY, report the advantage of team teaching to be shared planning, which helps relieve the burden of preparing necessary adaptions for special needs students, and the ability to carry out small and large group activities simultaneously. In addition, team teaching encourages versatility and creativity in teaching methods, the sharing of ideas concerning behavioral and emotional problems of students which allows greater possibility of solutions, and continuity of instruction for students who are no longer 'pulled-out' to the special education classrooms. Students are exposed to different teaching styles within one classroom and are afforded more opportunity for individual instruction with two teachers.

Wiedmeyer and Lehman (1991), in evaluating a general education/special education teaming program in West Bend, WI, focused on the problems which have been eliminated since teaming replaced the previously used 'pull-out' special

education program. These problems were (a) the social stigma attached to students who were pulled out for special education, (b) students' difficulty in generalizing skills learned in the special education classroom to the general education classroom, (c) regular education teachers who did not take ownership of students' learning needs, (d) the lack of communication between general education teachers and special education teachers, (e) the lack of curriculum coordination between special education and general education programs, (f) special education students missing special activities and presentations occurring in the general education classroom while in the 'pull-out' classroom, and (g) students' inability to integrate successfully for classes such as science or social studies due to their disabilities in basic areas such as reading or mathematics.

Bauwens, Hourcade, and Friend (1989) report preliminary data which "...suggest that working within an integrated educational setting, wherein knowledge can be more frequently used, may enhance job satisfaction and stability" (pp.19-20). Their preliminary research is reported in the following table:

TABLE 2

TEACHERS' PERCEPTIONS OF BENEFITS OF COOPERATIVE TEACHING

Potential benefits	General educators (N=24)	Special educators (N=22)
Increase job satisfaction	3.95	4.16
Reduce stress and burnout	3.45	3.72
Enhance stability	3.78	3.95
Increase teaching/ learning potential	4.37	4.22
Scores based on a 5-point Likert-type scale; 5= very likely, 1= not very likely.		

(Bauwens, Hourcade, & Friend, 1989, p. 19)

Scott and Smith (1988) found that teachers perceive themselves as more effective in the delivery of instruction and report more enjoyment of work when employed in collaborative school environments. In addition, the special education teacher may avoid the effects of burnout and stress which may in part result from working in the unique psychological climate of segregated special education settings (Crane & Iwanicki, 1986).

A third team made up of a general education and a special education teacher, Messersmith and Piantek (1988) of Princeton, NJ, report numerous student benefits. Some of the advantages of teaming from the student's point of view:

* For certain activities in the regular science class, special education students functioned at the same level

> with regular students. Their disabilities did not inhibit their performance or negatively affect the progress of other students.
> * Special education students developed a positive self-concept as they viewed themselves working on group level and completing activities that were valued by their peer group.
> * The program facilitated better social adjustment, and reduced the stigma of special education.
> * Students exhibited little disruptive behavior.
> * Students had the opportunity to benefit from different teaching styles and techniques.
> * Students received all levels of support.
> * Students learned to function in an independent manner, rather than exhibiting "learned helplessness" (p. 70).

An experimental general education/special education teaming project taking place in 50 of Missouri's 545 school districts in grades 2-10 across all subject areas is called 'class-within-a-class' (CWC). Quantitative analysis of program results is currently in progress in which CWC groups were compared with control groups in the same building. A preliminary report of the findings shows:

> * Reading and math showed increases for both groups of students; math gains were higher. Throughout the school year, students with disabilities were able to maintain average achievement in the regular classroom with CWC.
> * While downturns in the self-concept and self-esteem are customary when students reach puberty, studies show that students with disabilities in CWC made significant gains. Their peers did not.
> * Regular students in CWC made greater gains in self-concept and maintain relatively high self-esteem over peers in control groups as measured by the Piers-Harris Children's Self-Concept Scale and the Coopersmith Self-Esteem Inventory. CWC and control groups contained comparable numbers of normally achieving and at-risk students. By comparison, regular students in CWC made greater gains than control groups on (both) measures (Morrow, 1990, p. 11).

Thousand and Villa (1990, 1991) are perhaps the most widely quoted advocates of the use of special

education/general education teaching teams as a means to integrate students with disabilities into general education classrooms. After an examination of the literature on team and cooperative teaching, collaborative consultation, adult collaboration, and group theory, Thousand and Villa have concluded that teaching teams are effective when five basic elements are in place: (1) frequent face-to-face interactions, (2) a positive "sink-or-swim-together" sense of interdependence; (3) small group social skills in leadership, communication, trust building, decision making, and conflict management; (4) periodic assessments of how well the group is functioning and how the group might do better in the future; and (5) clear individual accountability for personal responsibilities (Thousand & Villa, 1990).

Thousand and Villa constructed a 20-item structured interview regarding teaching teams which was administered to one or more members of 30 special education/general education teams operating in Vermont. Findings of these interviews and Thousand and Villa's review of the teaming literature are summarized in table form. Each of the identified factors are "...categorized into at least one of the five basic human need categories described by Glasser (1985, 1986) in his 'control theory' of human behavior. According to the theory, people choose to do what they do because it satisfies one or more of five basic human needs: survival, power or control in one's

life, freedom of choice, a sense of belonging or love, and fun" (Thousand & Villa, 1990, p. 163).

Table 3

RATIONALE, POTENTIAL BENEFITS, AND MOTIVATIONAL FACTORS FOR ESTABLISHING TEACHING TEAMS

Survival/power	Freedom
Provides critical resources to regular education (Reynolds, Wang, & Walberg, 1987; Tindal, Shinn, Walz, & Germann, 1987; Will, 1986)	Increases flexibility in scheduling and grouping (Olsen, 1968)
Promotes professional growth through peer coaching (Branat, 1987)	Allows for more effective and efficient use of each team member's skills (Armbruster & Howe, 1985; Bauwens, Hourcade, & Friend, 1989)
Promotes acquisition of trust, communication, leadership, and conflict resolution skills (Johnson & Johnson, 1987a)	Allows for division of labor (Fox & Faver, 1984)
Increases adult self-esteem (Johnson & Johnson, 1987b)	Facilitates sharing of responsibility for all children
Increases the number of students who get help from specialized services (Armbruster & Howe, 1985)	Provides an opportunity to work with a variety of students
Decreases the number of students referred for specialized services through increased individualization (Felzheiser, Shepard, & Wozniak, 1986)	Reduces the amount of direct support needed from an administrator
Allows for sharing of skills	
Provides access to technical assistance	
Promotes perspective taking	
Increases student-teacher direct contact time	

Table 3 (con't)

Fun	Sense of Belonging
Allows for adult stimulation, professional talk, and interaction (Lieberman, 1986)	Alleviates isolation (Bauwens et al., 1989; Fox & Faver, 1984)
Provides someone to laugh with	Motivates commitment to others (Fox & Faver, 1984)
Enables creativity	Develops positive interpersonal relations (Johnson & Johnson, 1987b)
Creates a positive learning environment	Increases social support (Johnson & Johnson, 1987b)
Improves staff morale	Promotes student's inclusion with peers through elimination of pull-out programs (Armbruster & Howe, 1985; Bauwens et al., 1989)
	Allows for integration of specialists in classroom settings

Note: All items in the table without citations were identified by Vermont teaching team members through a structured interview developed by the authors (Thousand & Villa, 1990, p. 164).

Summary

Team teaching is an instructional delivery system which first appeared in the literature in the 50's. Team teaching was originally conceived in answer to a teacher shortage and to a concern for improving the scientific and technical education of the nation's students. The use of teaching teams has endured and continues to have many advocates in general

education. Those who view team teaching as an efficient and effective means of delivering instruction to students have offered a number of advantages and positive effects, for both staff and for students.

It was not until the early 80's that discussion of team teaching as a means of integrating students with disabilities into general education classrooms began to appear in the literature. Team teaching with general education teachers and special education teachers as an instructional delivery model for students with disabilities has been suggested as a means of implementing the merger of the dual systems of general and regular education into one unified system. Advocates of this method, like the advocates of general education teaming before them, have described positive outcomes for both staff and students.

These positive outcomes for students have been in both the academic and the social skills domains. However, the literature contains scant reporting of the measurement of student gains in these two domains. The researcher's purpose in this study was to provide quantitative analysis of data regarding student achievement when general education/special education teaching teams were employed to integrate mildly disabled students into general education classrooms. Specifically, the researcher sought answers to the following questions:

1. Is there an effect for general education and/or special education students in math and/or reading achievement when instruction is provided by a general education/special education teaching team?

2. Is there an effect for general education and/or special education students in teacher-preferred behavior, peer-preferred behavior, or school adjustment when instruction is provided by a general education/special education teaching team?

CHAPTER III

METHODOLOGY

In this chapter, a description of the methodology used to address the research questions concerning the effects of the use of teaching teams of one general education teacher and one special education teacher to instruct general education classrooms in which students who are mildly impaired are fully integrated is presented. Included in this chapter are the following sections: method, sample population, instrumentation, data collection, and data analysis.

Method

A quasi-experimental research design was employed. The purpose of this type of research is to predict or estimate characteristics of a population. Using the techniques of inferential statistics, descriptive characteristics of a sample can be generalized to the entire population with a known margin of error (Glass & Hopkins, 1984).

The research design included an experimental group and a control group. Isaac and Michael (1989) call the research design employed in this study a 'nonrandomized control-group pretest-posttest design.' It is graphically depicted as:

	Pretest	Treatment	Posttest
Experimental Group	T1	X	T2
Control Group	T1	.	T2

Sample Population

The sample population was drawn from two elementary schools in neighboring K-12 districts within the same intermediate school district in western Michigan. These two elementaries were chosen for comparison because one of them, the experimental school, provided instruction to all special education students in a team-taught (one general education teacher and one special education teacher) classroom, and because they were similar on a number of characteristics. Both elementaries were within K-12 districts where the majority of residents were blue collar workers, there was no major industry, and were adjacent to a large urban K-12 district. Each of the K-12 districts was comprised of less than 1% minority students and 0% minority staff members. Before the experimental school began the use of teaching teams, special education students received services in special education classrooms. The special education classrooms were educable mentally impaired (EMI), learning disabled (LD), emotionally impaired (EI), and resource room (RR). The special education classrooms in the control school included EMI, 2 LD, EI, and RR. Both buildings provided special education services to all special education students grades 1-5, in the entire school district whose needs could not be met

in a resource room, in addition to its own special education students. Resource rooms only provide services to students who require 50% or less of the school day in special education. In other words, if a student from another elementary within the district needed more than 50% of their school day with a special education teacher, they were transferred to the elementary school included in this study. Additional information regarding the experimental and control groups is provided in graphic form for aid in comparison.

Table 4

CHARACTERISTICS OF EXPERIMENTAL AND CONTROL GROUPS COMPARED

	Experimental (n=68)	Control (n=68)
# of students at each grade level	G.E. S.E. 3rd 12 12 4th 12 11 5th 10 11	G.E. S.E. 3rd 10 10 4th 8 6 5th 16 18
# of students in each disability area	EI 3 EMI 5 LD 26	EI 8 EMI 5 LD 21
Sex of students	Male Female G.E. 15 19 S.E. 20 14 Total 35 33	Male Female G.E. 11 23 S.E. 19 15 Total 30 38
Mean years of teaching experience	G.E. = 8.5 S.E. = 8.5	G.E. = 12.5 S.E. = 15
# of teachers at each degree level	G.E. MA = 1 BA = 2 S.E. MA = 1 BA = 2	G.E. MA = 0 BA = 3 S.E. MA = 2 BA = 2
Mother's level of education	G.E. S.E. 12- 4 11 12 18 18 12+ 12 5	G.E. S.E. 12- 5 15 12 19 13 12+ 10 6
Student lunch (based on family size and income)	G.E. S.E. Free 4 12 Reduced 4 2 Full Pay 26 20	G.E. S.E. Free 15 26 Reduced 0 1 Full Pay 19 7

The experimental group included 3rd, 4th, and 5th grade special education students and randomly chosen general education students assigned to the team-taught classrooms. The general education students in the team-taught classrooms were assigned to the general education teachers in the same

manner that all other students in the building were assigned to general education teachers.

The control group included all 3rd, 4th, and 5th grade special education students who were assigned to one of the four special education teachers who served special education students and students from one general education classroom per grade level. The 3rd grade class was chosen at random from four 3rd grade classes, the 4th grade class from three 4th grade classes, and the 5th grade class from three 5th grade classes in the building. These classes were chosen at random by choosing the general education teacher whose last name came first in alphabetical order. All possible 3rd, 4th, and 5th grade general education students in the team-taught classrooms in the experimental school and all 3rd, 4th, and 5th grade general education students in the randomly chosen control classes were not included in the sample. General education students were chosen at random from these classes in numbers equal to the numbers of special education students at each grade level in each building.

Subjects were lost during the course of the study due to a variety of reasons including subjects moving out of the building, subjects' special education eligibility changing, and subjects who were not present for posttesting on the academic measures. Sixteen of the original one hundred fifty-two subjects were lost.

The Teaching Teams

Because 'teaching team' is used to label a variety of instructional arrangements, a summary of the inception of the teaming project as well as comprehensive descriptions of the teaching teams in this study are provided. The descriptions provided are a result of a written questionnaire (see Appendix B) completed by each of the six team teachers in the study and direct observation by the researcher of the team teachers in their classrooms.

The planning for team teaching at the experimental school began in the early spring of the 1989-90 school year. The four special education teachers, the teacher consultant and the district's special education director met to discuss special education programming for the following school year. The teacher consultant described student successes over the two school years in which some students who had previously received resource room services were integrated into general education classrooms with support from the teacher consultant. The teachers agreed that it was desirable for all special education students to spend more time in general education classrooms with support. The special education director described the concept of team teaching and suggested it as a possible method of integrating the special education students into general education classrooms. After several subsequent meetings, in which the building principal was involved, the teachers decided to pursue the possibility of teaming for the

1990-91 school year. The group decided that teacher consultant services would not be necessary if there was a general education/special education teaching team at each grade level, grades one through five. The five special education teachers agreed which teacher would be at each grade level, and each special education teacher was to seek a general education teacher at their grade level who was willing to team with them the following school year. Because of the high number of third grade special education students (sixteen), it was decided to have a three teacher team, two general education teachers and one special education teacher, at this grade level. Half of the special education students would be placed in each third grade classroom and the special education teacher would team one-half of each school day with each general education teacher. The group also agreed that if there was not a voluntary teaching team for each grade level, then there would be no teaming at any grade level.

General education teachers willing to team were found at each grade level, and the five teams spent considerable time in the late summer planning for the 1990-91 school year. In December of the first year of teaming, the team teachers received a two-day inservice on collaboration skills. In March of the same year, the team teachers attended two days of the Michigan Council for Exceptional Children state conference, where they attended several sessions on collaborative teaching. At the conclusion of the 1990-91

school year one of the special education teachers moved out of state, her general education partner moved to another part of Michigan, one special education teacher transferred to another special education position within the school district, and one general education teacher opted not to team for the 1991-92 school year by transferring to a traditional general education classroom.

The third grade team was made up of a special education teacher with seven years previous experience teaching elementary special education in another school district. She had spent one and one-half years teaching preschool and substitute teaching in general education. During the 1990-91 school year she taught for a semester as the special education teacher in the fourth grade team, replacing a teacher who took leave when she adopted a baby. The general education teacher in the third grade team was a second year teacher. She agreed to team teach subsequent to being hired as a classroom teacher after student teaching at the experimental school during the 1989-90 school year. Although the third grade team was composed of three teachers during the initial year (two general education and one special education), a two teacher team was in place for the 1991-92 school year. This change was made because the teachers involved indicated that a team of three posed management problems. It was difficult to arrange mutual planning time, there was no instructional space for all of the students in the team in one place at the same

time, and the special education teacher was frequently needed to assist in both classrooms at one time which, of course, was not possible.

The general education teacher in the fourth grade team was in her nineteenth year of teaching, all at the elementary level. Sixteen of these years had been within the district in which she was currently teaching. This was her second year in the teaming project. She was also at the fourth grade level the previous year. The special education teacher in the fourth grade team had three years of teaching experience in a learning disabilities classroom prior to teaming. She taught for one semester and took leave for one semester during the previous school year, her first year of teaming.

The fifth grade team was made up of a general education teacher with ten years prior teaching experience. Prior to the 1991-92 school year, she taught for two years in an elementary in southern Michigan where all special education students were integrated in general education classrooms and special education staff provided support to the classroom teachers but did not team teach. The special education teacher in the fifth grade team had five years of teaching experience prior to the current year. All five years were in special education classrooms. Both of the fifth grade teaching positions were vacated at the end of the 1990-91 school year, and these two teachers were hired, in part, because of their interest in, and willingness to, team teach.

Each team had two classrooms to use. The classrooms were adjacent and are connected by a doorway. One classroom was used for large group instruction and the second was used when the class was divided for instruction such as reading groups, math groups, enrichment activities, and special projects. Each team had a full-time instructional aide.

Each team planned and carried out planning and instruction a little differently from the others, but each class was divided into two groups of students for reading and for math. Each teacher planned for, and instructed, her group for these two subjects. In each case the special education teacher instructed the lower ability group, but the lower ability groups generally included some general education students and the higher ability groups contained some special education students. Two of the teams instructed the students as a whole group for science and social studies. In the third team, the class was split into two groups for science and social studies. One teacher taught science twice and the other taught social studies twice. The purpose was not for ability grouping, but rather to reduce the number of students being instructed at one time so that all students could receive more individual attention. All other activities were done as a whole group, including physical education, music, and library. The teachers frequently took turns planning and carrying out the instruction for a particular lesson. The second teacher then provided support to students during the

lesson by giving individual attention to students who required it and by assisting the teacher who was teaching the lesson.

One-half day per month, substitute teachers were hired and the team teachers had extended planning time. This was the only planning time the teachers had that was in addition to the planning time built into the school week when students received library, physical education, and music instruction from specialized teachers. The team teachers typically used this half-day per month to do long range planning, including thematic units. All teams engaged in planning outside of their regular workday, sometimes at a location other than the school building. All of the team teachers stressed the important role that collaboration, compromise, and cooperation play in the planning and delivery of instruction.

Each team contained the same number of general education students as were in the other general education classrooms at their grade level. Each team could have up to fifteen special education eligible students as Michigan state special education rules allowed a maximum of fifteen students on the caseload of a categorical special education teacher. The third grade team had twenty general education students and fourteen special education students. The fourth grade team had twenty-seven general education students and fourteen special education students, while the fifth grade team had twenty-two general education students and twelve special education students.

The six team teachers indicated both advantages and disadvantages to teaming for themselves as teachers. Advantages included: having another adult to consult with who knew the students and situation well, special education teachers being able to work with general education students, general education teachers having a better understanding of the needs of special education students, the sharing of responsibility for a heterogeneous group of students, having another teacher to help maintain objectivity regarding discipline and other student problems, and the ability for one teacher to leave the room to deal with parents and individual students when necessary. Disadvantages to teachers in the teaming situation included: the difficulties inherent in dealing with relatively large classes, i.e., preparing materials, correcting written assignments, and assuring that students were getting adequate opportunity for oral questions and responses during whole group instruction; having to compromise when they did not agree with their teaming partner; and the need for more careful planning because of the more heterogeneous nature of the class.

The team teachers also reported both advantages and disadvantages for students. Some advantages were: students learning to work cooperatively with those of both higher and lower ability than themselves; general education students no longer being aware of which students were special education eligible in many cases; students learning to acknowledge and

accept other students' strengths and weaknesses; increased social opportunities for all students; more appropriate role models for special education students; increased self-esteem for students who peer tutor; and more academic stimulation for special education students. Disadvantages to teaming for students had, for the most part, to do with the relatively large numbers of students in each team: the near impossibility of individualizing lessons enough for some students; the restriction of movement and, at times, the noise level with so many students in the classroom at one time; and more students being distracted by any disruptive behavior of emotionally impaired students than when they were in self-contained special education classrooms.

All team members shared responsibility for student discipline. All teams reported that discipline was not a major issue because inappropriate behavior was fairly rare and was typically of a minor nature. The building principal reported far fewer special education students referred to the office for discipline problems then was the case previous to the start of team teaching.

All of the teachers but one had received training in Cooperative Learning, and all had received Instructional Theory Into Practice (ITIP) training. Most had attended some type of inservice and/or received training in enhancing student self-esteem, and in the Michigan Health Model. Many had attended inservices on Outcomes Based Education. Each of

the teaming teachers had attended other inservices, conferences, and workshops and reported doing so on a regular basis, both on school time and on their own time.

Instrumentation

Data regarding student academic achievement were obtained through administration of the Basic Academic Skills Samples (BASS) (Epsin, Deno, Maruyama, & Cohen, 1989). The BASS is a screening instrument designed to yield an index of student achievement in the basic academic skill areas of reading, math, written expression, and spelling. The BASS emanates from research on curriculum based measurement procedures designed to monitor student growth in these four academic areas. Research on these procedures has supported their validity and reliability in measuring growth in academic skills (Deno, 1985; Deno & Fuchs, 1986). Because validity has been established for each of the subtests of the BASS separately, it is possible to use subtests independently. The math and reading subtests were used in this study.

The math section consists of items divided among addition, subtraction, multiplication, and division facts. Students are allowed one minute on each of two pages of math facts to complete as many items as possible. The reading subtest consists of three maze selections written at the second grade level. For each passage, students are allowed

one minute to silently read and select from multiple choice alternatives.

The BASS was administered to ninety-six fourth and fifth grade students, twenty-seven of whom are eligible for and receive special education services, so that the researcher would have experience in administering the instrument before data were collected for this study. The type and number of math problems completed by selected students, approximately a third of those who were administered the instrument, were examined by the students' teacher(s) who verified that, for all but a few students, the quantity and quality of student answers were what would be expected given the students' typical performance during math instruction in the classroom. Three of the four teachers indicated they used timed activities to test whether math facts had been committed to memory by students. One fifth-grade teacher indicated that those students who had not committed most math facts to memory frequently had difficulty completing assignments involving the computation of large numbers. The reading section of the BASS was also judged to be sensitive to the content and intent of reading instruction in the classroom by these teachers.

In a paper describing the development of the BASS (Espin, Deno, Maruyama, & Cohen, 1989) the authors describe the BASS as a screening instrument designed to yield an index of student achievement in the basic academic skill areas. As part of a larger project to study programs formed to meet the

needs of mildly disabled students in the regular classroom, the correlation between the BASS reading and math measures and other measures of achievement in these areas was examined. To test the validity of the reading measure, students' reading scores on the BASS were correlated with the number of correct words read aloud by students on a first grade reading passage. Reading aloud measures have been shown to be highly and reliably correlated with reading achievement scores, with average coefficients in the .80's (Deno, Mirkin, & Chiang, 1982). Both the correct multiple choice and the total words read scores were examined in the correlational analysis. The correlation between the number of correct words read aloud and the correct multiple choice measure of the BASS was .85. The correlation between the number of correct words read aloud and the total number of words read on the BASS measure was .81. Within grade correlation ranged between .78 and .86 for reading aloud and correct multiple choice, and between .73 and .84 for reading aloud and total number of words read. The results of this study support the use of the BASS reading subtest as an index of student achievement in reading.

In a second study reported by Espin, Deno, and Maruyama, & Cohen (1989), the correlation between the math subtests of the BASS and the Wide Range Achievement Test-Revised (WRAT-R) (Jastak & Wilkinson, 1984) was computed. The correlation between scores on the WRAT-R and the number of digits correct was .68. Within grade correlation ranged between .38 and .56

for the WRAT-R and digits correct, and between .35 and .56 for the WRAT-R and problems correct. The correlation between problems correct and digits correct was .995. The overall and within grade correlations are typical of those found in mathematics. Overall correlations between different math achievement measures are usually in the .60's, and within grade correlations, if reported, range between .35 and .60 (Salvia & Ysseldyke, 1988).

Concurrent validity estimates using the Metropolitan Achievement Tests (Prescott, Balow, Hogan, & Farr, 1984) found a correlation of .85 for the reading subtest and a correlation of .79 for the math subtest of the BASS (Jenkins & Jewell, 1990).

The BASS has been used for research purposes similar to the present study in the recent past. The use of the BASS to obtain pretest-posttest academic scores is reported by Deno, Maruyama, Espin, and Cohen (1990) in a 1987-88 study and again in a 1988-89 study. The purpose of the 1987-88 study was to assess which school effectiveness variables might identify programs producing higher levels of student achievement. Of the thirty-two elementaries included in the study, seven schools were chosen specifically because their special education programs were designed to educate children primarily in general education classrooms. As a part of this study, the BASS data were analyzed to determine whether growth trends were evident across grades. The time period between the

pretest and posttest administration of the BASS was three months. The results indicate the basic skills means increased across grade levels, and the increase for reading and math was linear.

The purpose of the 1988-89 study was to compare the instruction in integrated programs, where special education students were included in general education classrooms, and resource programs. As a part of the study, an analysis of the difference in cognitive outcomes for special education students was conducted. Differences between integrated versus resource program were statistically significant at $P<.001$ for reading achievement. The integrated special education students outperformed the resource room special education students (Deno, Maruyama, Espin, and Cohen, 1990).

The use of the BASS is also reported in a study reported by Jenkins, Jewell, Leicaster, Jenkins, and Troutner (1991), which evaluated a project to redesign special education and remedial services in an elementary school through the use of cooperative learning, cross-age tutoring, and in-class services for students with disabilities and remedial students. Analysis of the BASS scores revealed a reliable difference between the scores of special education students in the two schools studied. Univariate tests revealed a marginal effect on reading scores and a significant effect on math problems correct favoring the school with pull-out versus in-class

services for special education students (Jenkins, Jewell, Leicaster, Jenkins, and Troutner, 1991).

Data regarding students' social competence and school adjustment were obtained through the administration of the Walker-McConnell Scale of Social Competence and School Adjustment (Walker & McConnell, 1988).

> The Walker-McConnell Scale was designed to sample two primary adjustment domains, within the school setting, that are usually subsumed under the broad term of social competence- that is, adaptive behavior and interpersonal social competence. As used herein, adaptive behavior refers to the skills necessary to function independently within classroom instructional settings, and interpersonal social competence refers to the skills necessary to maintain adequate social interactions and relationships with others (Walker & McConnell, 1988, p.2).

The scale consists of three subscales. They are: (Subscale 1) Teacher-Preferred Social Behavior, which consists of 16 items measuring peer-related social behavior valued or preferred by teachers; (Subscale 2) Peer-related Social Behavior, which consists of 17 items that measure peer-related social behavior highly valued by peers, and; (Subscale 3) School Adjustment Behavior, which measures adaptive social-behavioral competencies highly valued by teachers within classroom instructional settings and consists of 10 items.

With regard to validity, "...the Walker-McConnell purports to measure the constructs of social competence and school adjustment. Measures of these two constructs are intercorrelated and not independent of each other" (Walker & McConnell, 1988, p.7). All reported studies of validity and

reliability for this scale are found in the manual which is provided with the Walker-McConnell kit.

Item validity was estimated for both the total scale and subscales using item-total correlation indices: Total test- .45 to .80, Subscale 1- .65 to .84, Subscale 2- .60 to .83, Subscale 3- .74 to .94.

Five studies are reported on the discriminant validity of the Walker-McConnell. The scale has been found to discriminate between: (1) elementary aged seriously emotionally disturbed students and normal students: Total test- 64.77%, Subscale 1- 80.68%, Subscale 2- 77.27%, Subscale 3- 69.32%; (2) second and fourth grade students who were classified on a peer preference scale as popular, rejected, neglected, or average, which found the Walker-McConnell a valid measure of social relations among peers when based on teacher perception; (3) three studies found the Walker-McConnell valid in discriminating groups of students formed by district placement and referral practices. Analysis found the scale to be statistically significant at $P<.05$ in differentiating at risk and non-at risk students in grades K-3, potentially handicapped from non-handicapped in grades 3-6, and elementary aged students at risk for behavior disorders from those who were not.

Eight studies of the Walker-McConnell's reliability are reported in the manual. The two studies which are most clearly related to this study are: (1) direct observations of

65 students (K-12) were correlated with teacher ratings on the scale: Total test- .74, Subscale 1- .63, Subscale 2- .59, Subscale 3- .73, and; (2) teacher ratings on the Walker-McConnell of 57 elementary students referred for academic difficulties were correlated with teacher ratings on the Humphrey Self-Control Scale: Total test- .73, Subscale 1- .68, Subscale 2- .41, and Subscale 3- .81.

Five studies have been conducted on the Walker-McConnell Scale's test-retest reliability with from two weeks to six months between test and retest. The lowest and highest correlations were: Total test- .65 to .87, Subscale 1- .67 to .94, Subscale 2- .61 to .97, and Subscale 3- .67 to .92.

Estimates of the standard error of measurement for the Walker-McConnell Scale, as calculated from the national norm sample data of 1,812 cases, were as follows for raw scores: Total test- 5.61, Subscale 1- 2.70, Subscale 2- 2.91, Subscale 3- 1.94. These estimates for the standard error of measurement are small and suggest that the range of error associated with Walker-McConnell derived scores is quite narrow (Walker & McConnell, 1988).

Data Collection

The BASS was group administered to each classroom of students included in the experimental and control groups by the researcher. The pretest of the BASS was administered in October, and the posttest was administered in March. The time

between pretest and posttest was equal to one semester. All administration instructions were strictly adhered to. The six month interval between pretest and posttest was reasonable given that tests of validity and reliability of the instrument were based on the same time period or less (Espin, Deno, Maruyama, & Cohen, 1989; and Jenkins, Jewell, Leicester, Jenkins, & Troutner, 1991). This short interval between pretest and posttest also was likely to have minimized the number of special education subjects who were dropped from the study because of movement out of the building and/or special education eligibility.

The Walker-McConnell Scale of Social Competence and School Adjustment was distributed to teachers of subjects in the sample and were completed in October and again in March. For the control group, special education teachers completed the scale for special education students, and general education teachers completed the scale for general education students. For the experimental group, each general education/special education teacher team completed the scales together. Because the possibility existed that the team teachers would not agree on how items on the scale should be scored for any particular student, it was decided in advance which teacher's opinion would take precedence for each student. This was accomplished by shuffling the protocols and placing them in a stack. Then, beginning with the general education teacher and alternating between the general

education and the special education teacher, the protocols were marked with the teacher's first initial. When the scales were distributed to the team teachers for completion, the meaning of the initial on the top of each protocol was explained. Protocols were collected by the researcher after being completed by the appropriate teacher(s).

Data Analysis

Data obtained from the administration of the BASS and the Walker-McConnell Scale were entered for computer analysis. Minitab Statistical Program software was used. Minitab is a general purpose data analysis system for organizing, analyzing, and reporting statistical data.

For each of the five research questions, three null hypotheses were posed. Each research question was answered by analyzing the results generated by a 2x2 analysis of covariance (ANCOVA). ANCOVA is a method of statistical analysis devised by R.A. Fisher in 1932 that combines the analysis of variance with regression analysis. It is used to increase statistical power, and/or reduce bias by equating groups on one or more variables (Isaac & Michael, 1989). ANCOVA was an appropriate procedure to use in this study because the outcome variable (posttest score) is on a continuous scale of measurement, and the two predictor variables (placement and student type) are on a discrete scale of measurement, with two levels for each predictor variable.

The two levels for the predictor variable 'placement' are team-taught and not team-taught. The two levels for the predictor variable 'student type' are general education and special education. The research questions and the corresponding hypotheses are:

Research Question 1: Is there an effect of student type (general education or special education) or placement (team-taught or not team-taught) on the math achievement of 3rd, 4th, and 5th grade students? Does the effect of placement depend on student type?

Ho1 There will be no difference in math achievement between the special education students who receive instruction in the team-taught classroom and those who receive instruction in a special education classroom.

Ho2 There will be no difference in math achievement between the general education students in the team-taught classroom and those in a general education classroom where special education eligible students are pulled out for instruction.

Ho3 The effect of treatment (team-taught or pull-out) on math achievement will not depend on the type of student (general education or special education).

Research Question 2: Is there an effect of student type (general education or special education) or placement (team-taught or not team-taught) on the reading achievement of 3rd,

4th, and 5th grade students? Does the effect of placement depend on student type?

Ho4 There will be no difference in reading achievement between the special education students who receive instruction in the team-taught classroom and those who receive instruction in a special education classroom.

Ho5 There will be no difference in reading achievement between the general education students in the team-taught classroom and those in a general education classroom where special education eligible students are pulled out for instruction.

Ho6 The effect of treatment (team-taught or pull-out) on reading achievement will not depend on the type of student (general education or special education).

Research Question 3: Is there an effect of student type (general education or special education) or placement (team-taught or not team-taught) on the teacher-preferred social behavior of 3rd, 4th, and 5th grade students? Does the effect of placement depend on student type?

Ho7 There will be no difference in teacher-preferred social behavior between the special education students who receive instruction in the team-taught classroom and those who receive instruction in a special education classroom.

Ho8 There will be no difference in teacher-preferred social behavior between the general education students in the

team-taught classroom and those in a general education classroom where special education eligible students are pulled out for instruction.

Ho9 The effect of treatment (team-taught or pull-out) on teacher-preferred social behavior will not depend on the type of student (general education or special education).

Research Question 4: Is there an effect of student type (general education or special education) or placement (team-taught or not team-taught) on the peer-preferred social behavior of 3rd, 4th, and 5th grade students? Does the effect of placement depend on student type?

Ho10 There will be no difference in peer-preferred social behavior between the special education students who receive instruction in the team-taught classroom and those who receive instruction in a special education classroom.

Ho11 There will be no difference in peer-preferred social behavior between the general education students in the team-taught classroom and those in a general education classroom where special education eligible students are pulled out for instruction.

Ho12 The effect of treatment (team-taught or pull-out) on peer-preferred social behavior will not depend on the type of student (general education or special education).

Research Question 5: Is there an effect of student type (general education or special education) or placement (team-taught or not team-taught) on the school adjustment behavior of 3rd, 4th, and 5th grade students? Does the effect of placement depend on student type?

Ho13 There will be no difference in school adjustment behavior between the special education students who receive instruction in the team-taught classroom and those who receive instruction in a special education classroom.

Ho14 There will be no difference in school adjustment behavior between the general education students in the team-taught classroom and those in a general education classroom where special education eligible students are pulled out for instruction.

Ho15 The effect of treatment (team-taught or pull-out) on school adjustment behavior will not depend on the type of student (general education or special education).

Data were entered into Minitab for analysis according to the following procedure. Seventeen values were entered for each student: (1) placement, (2) student type, (3) grade, (4) gender, (5) mother's education level, (6) socio-economic status, (7) age, (8) math pretest, (9) reading pretest, (10) teacher-preferred social behavior pretest, (11) peer-preferred social behavior pretest, (12) school adjustment behavior pretest, (13) math posttest, (14) reading posttest, (15)

teacher-preferred social behavior posttest, (16) peer-preferred social behavior posttest, and (17) school adjustment behavior posttest. So that these covariates could be used in the analysis, they were coded as follows: pretest score as a percent correct for the math and reading achievement measure and as a percentile rank for the score on the social skills measure; gender- 0 for female and 1 for male; age- on a continuous scale in years and months; socio-economic status- 0 for free lunch, 1 for reduced lunch, and 2 for full price lunch, and; education level of mother- 0 for less than 12th grade, 1 for 12th grade, and 2 for at least some post 12th grade education.

Each of the five research questions was answered using the following described procedures. The analysis began with a visual inspection of the data. Histograms were used to check for a normal distribution of scores for the posttest. Two procedures were necessary to assure that the ANCOVA assumption that covariates are related to the dependent variable was not violated (Glass & Hopkins, 1984). Posttest scores were plotted against each covariate to check for a linear relationship. "The scatterplot enables one to surmise whether or not a computed r will accurately summarize the relationship between two variables" (Glass & Hopkins, 1984, p. 81). A correlation coefficient (Pearson product moment) was computed between each posttest score and each covariate.

If the relatedness assumption was violated for any covariate, that covariate was not used in the ANCOVA.

Using Minitab, the following functions were performed on the data entered. Observed scores were converted to scores adjusted to the covariate(s). A 2x2 ANCOVA was executed. The 2x2 ANCOVA graphically depicted is:

Special Education Teamed	General Education Teamed
Special Education Nonteamed	General Education Nonteamed

The ANCOVA table partitioned the total variation in posttest scores into four sources:

Total Variation = variation due to student type
+ variation due to placement
+ variation due to the interaction of student type and placement
+ variation due to error.

Three tests were based on mean squares derived from the ANCOVA, one for each main effect (placement and student type) and one for the interaction between placement and student type. To ascertain whether there was statistical significance for the interaction and each main effect, an F-ratio was formed by dividing the appropriate mean square by the mean square of the error. Each F-ratio value obtained was then compared to the appropriate F statistic. As a result of this

comparison, each hypothesis was examined for significance. A significance level of .05 was used for all tests.

The ANCOVA also provided a fitted value (the best estimate of the underlying population mean value corresponding to each observation), and a residual (how much each observation differs from its fitted value). A plot of actual values on the posttest against the predicted, or fitted, values on the posttest was used to check for homogeneity of errors. A histogram of residuals was used to check for a normal distribution of errors. A normal distribution assures that the sample approximates the underlying population.

Summary

A quasi-experimental research design which utilized an experimental group and a control group was employed in this study. The sample population was drawn from two elementary schools in neighboring school districts within the same intermediate school district in Western Michigan. The sample was limited to 3rd, 4th, and 5th grade students.

Data regarding student achievement in the areas of reading and math were obtained through a pretest and a posttest administration of the Basic Academic Skills Survey (BASS). Data regarding student achievement in peer-preferred behavior, teacher-preferred behavior, and school adjustment were obtained through a pretest and posttest administration of the Walker-McConnell Scale of Social Competence and School

Adjustment. Pretest data were obtained in October and posttest data were obtained in March of the same school year.

Minitab, a data analysis management system, was used to treat the data. The primary procedure used in the formal testing of the data was the Analysis of Covariance (ANCOVA). Each of the five research questions was answered by analyzing the information generated by the ANCOVA.

Chapter IV will present the results of the data analysis, which will be summarized in Chapter V. Chapter V will also include the conclusions and recommendation which result from the study.

CHAPTER IV

RESULTS

The present study was undertaken to make comparisons between students in an elementary school where mildly disabled students were fully integrated into general education classrooms taught by teaching teams of special and general educators, and students in an elementary school where special education students were placed in special education classroom for instruction. More specifically, the researcher sought to determine whether the teaming strategy had an effect on: (1) special and general education students' reading and math achievement, and (2) special and general education students' social competence and school adjustment.

Data regarding student achievement in math, reading, teacher-preferred social behavior, peer-preferred social behavior, and school adjustment were obtained from pretest and posttest administration and were analyzed in order to answer the five research questions. The results of the analysis are presented as each research question is answered.

Research Question 1: Is there an effect of student type (general or special education) or placement (team-taught or not team-taught) on the math achievement of 3rd, 4th, and 5th

grade students? Does the effect of placement depend on student type?

Ho1 There will be no difference in math achievement between the special education students who receive instruction in the team-taught classroom and those who receive instruction in a special education classroom.

Accept

Ho2 There will be no difference in math achievement between the general education students in the team-taught classroom and those in a general education classroom where special education eligible students are pulled out for instruction.

Accept

Ho3 The effect of treatment (team-taught or pull-out) on math achievement will not depend on the type of student (general education or special education).

Accept

The histogram of math posttest scores showed a bimodal distribution, as seen in Figure 1.

Figure 1

HISTOGRAM OF MATH POSTTEST SCORES

N=136

Midpoint	Count	
0	1	*
2	1	*
4	3	***
6	7	*******
8	23	**********
10	24	**********
12	28	**********
14	10	**********
16	19	**********
18	7	*******
20	5	*****
22	5	*****
24	3	***

Plots of math posttest against each covariate were done to determine whether a linear relationship existed between math posttest and the covariate. The plots showed a positive linear relationship between math posttest and all covariates. The correlation of math posttest scores with each covariate was:

Grade -	.357
Gender -	.001
Mother's Education Level -	.176
Socio-economic Status -	.207
Age -	.027
Math Pretest -	.816

Because the inclusion of any covariate except math pretest would increase the variance attributable to error, only math pretest was used as a covariate in the ANCOVA.

Table 5 presents the observed means and the means adjusted for the covariate, math pretest.

Table 5

MEANS OF MATH POSTTEST BY GROUPS

Group	Observed Mean	Adjusted Mean
Teamed Special (n=34)	13.42	15.49
Nonteamed Special (n=34)	14.63	16.16
Teamed General (n=34)	20.61	17.85
Nonteamed General (n=34)	19.31	18.46
Special (n=68)	14.03	15.82
General (n=68)	19.96	18.15
Teamed (n=68)	17.02	16.67
Nonteamed (n=68)	16.97	17.31

To determine whether a statistically significant difference existed between math posttest and placements and/or student types, an analysis of variance was performed on the

adjusted mean scores. The result of this procedure is seen in Table 6. As shown by this table, there was a significant difference between general education and special education students ($F=12.29$; $p<.01$). A significant difference between teamed and nonteamed students was not found.

Table 6

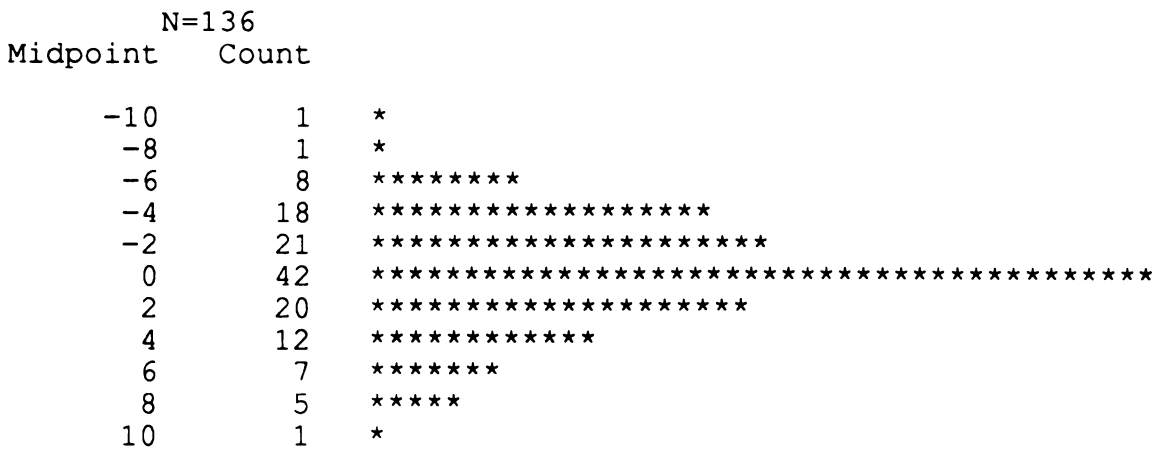
ANALYSIS OF VARIANCE OF MEANS OF MATH POSTTEST

Source of Variance	df	MS	F	Significance of F
Placement	1	13.84	1.07	.302
Student Type	1	158.36	12.29	.001
Placement by Student type	1	0.02	0.00	.966
Error	131	12.88		

The histogram of errors revealed a normal distribution, as seen in Figure 2.

Figure 2

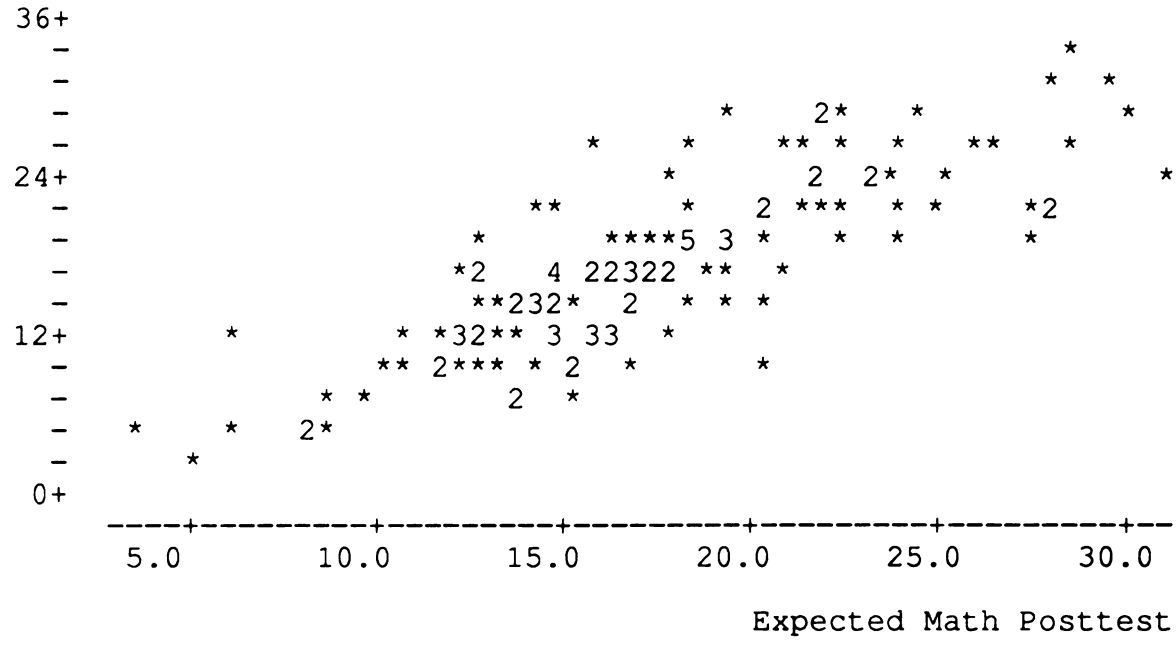
HISTOGRAM OF MATH POSTTEST ERRORS



The homogeneity of errors was adequate as shown by Figure 3, a plot of posttest scores against the expected posttest scores. The correlation between actual math posttest scores and expected math posttest scores was .83.

Figure 3

PLOT OF MATH POSTTEST SCORES BY EXPECTED MATH POSTTEST SCORES



Research Question 2: Is there an effect of student type (general education or special education) or placement (team-taught or not team-taught) on the reading achievement of 3rd, 4th, and 5th grade students? Does the effect of placement depend on student type?

Ho4 There will be no difference in reading achievement between the special education students who receive instruction in the team-taught classroom and those who receive instruction in a special education classroom.

Accept

Ho5 There will be no difference in reading achievement between the general education students in the team-taught classroom and those in a general education classroom where special education eligible students are pulled out for instruction.

Accept

Ho6 The effect of treatment (team-taught or pull-out) on reading achievement will not depend on the type of student (general education or special education).

Accept

The histogram of reading posttest showed a bimodal distribution of scores, as seen in Figure 4.

Figure 4

HISTOGRAM OF READING POSTTEST SCORES

N=136

Midpoint	Count	
0	4	****
5	12	**********
10	11	**********
15	11	**********
20	17	**********
25	7	*******
30	27	**********
35	13	**********
40	13	**********
45	13	**********
50	4	****
55	2	**
60	2	**

Plots of reading posttest against each covariate were done to determine whether a linear relationship existed between reading posttest and the covariate. The plots showed a positive linear relationship between reading posttest and all covariates. The correlation of reading posttest scores with each covariate was:

Grade	-	.245
Gender	-	.208
Mother's Education Level	-	.249
Socio-economic Status	-	.340
Age	-	.123
Reading Pretest	-	.842

Because the inclusion of any covariate except reading pretest would increase the variance attributable to error, only reading pretest was used as a covariate in the ANCOVA.

Table 7 presents the observed means and the means adjusted for the covariate, reading pretest.

Table 7

MEANS OF READING POSTTEST BY GROUPS

Group	Observed Mean	Adjusted Mean
Teamed Special (n=34)	19.52	26.15
Nonteamed Special (n=34)	16.52	24.02
Teamed General (n=34)	37.17	29.51
Nonteamed General (n=34)	34.45	27.97
Special (n=68)	18.02	25.08
General (n=68)	35.81	28.74
Teamed (n=68)	28.34	27.83
Nonteamed (n=68)	25.49	25.99

To determine whether a statistically significant difference existed between the reading posttest and placements and/or student types, an analysis of variance was performed on the adjusted mean scores. The result of this procedure is seen in Table 8. A significant difference was found for student type ($F=4.41$; $p<.05$), as shown by the table. A significant difference between teamed and nonteamed students was not found.

Table 8

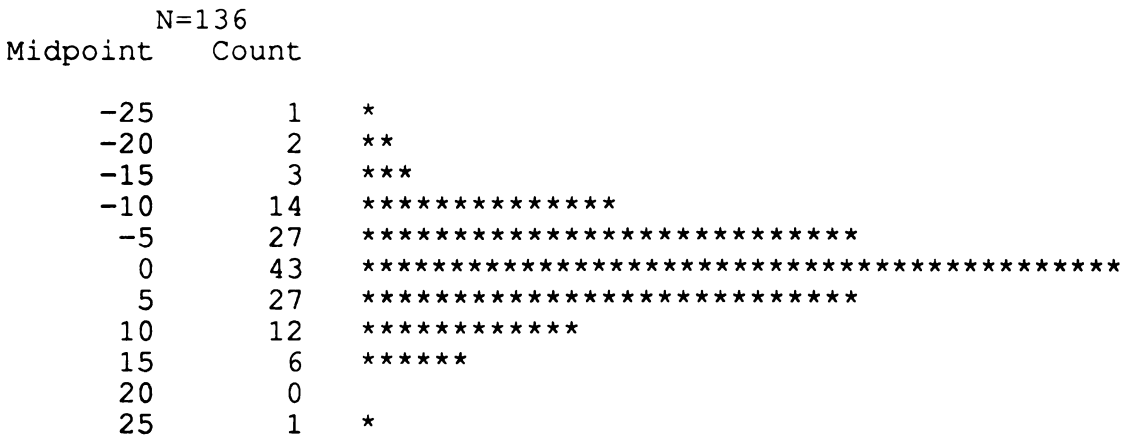
ANALYSIS OF VARIANCE OF MEANS OF READING POSTTEST

Source of Variance	df	MS	F	Significance of F
Placement	1	114.4	2.00	.160
Student Type	1	252.8	4.41	.038
Placement by Student type	1	3.0	0.05	.819
Error	131	57.3		

The histogram of errors revealed a normal distribution, as seen in Figure 5.

Figure 5

HISTOGRAM OF READING POSTTEST ERRORS

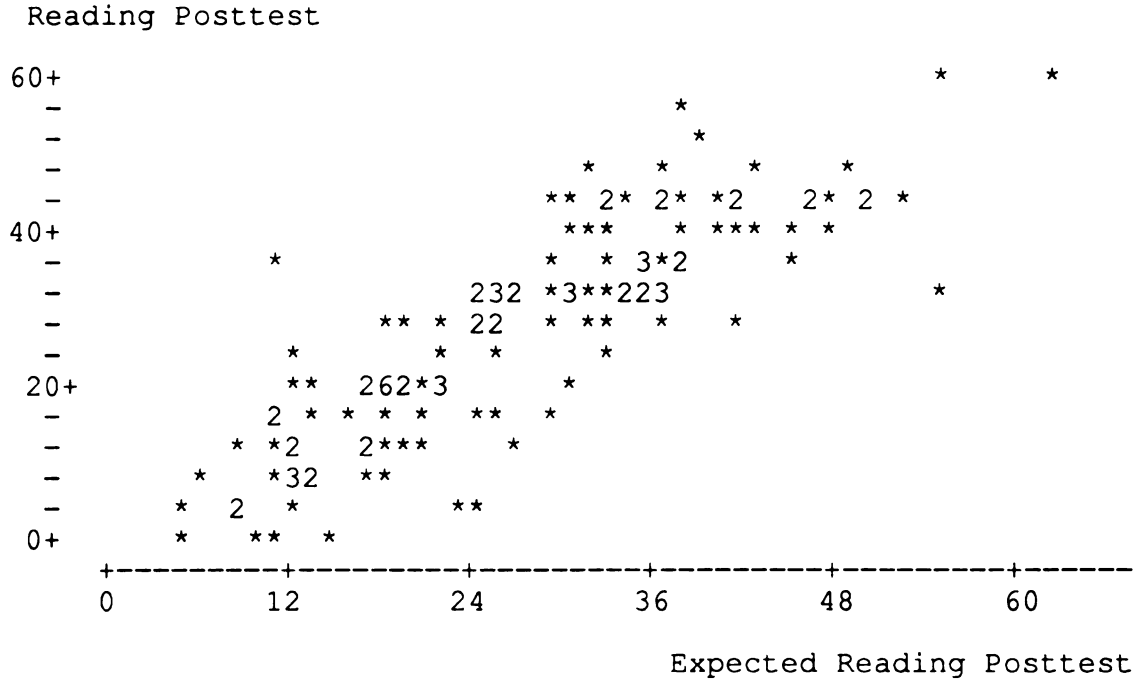


A plot of posttest scores against the expected posttest scores shows the homogeneity of errors to be adequate

(Figure 6). The correlation between actual reading posttest scores and expected reading posttest scores was .85.

Figure 6

PLOT OF READING POSTTEST SCORES BY EXPECTED READING POSTTEST SCORES



Research Question 3: Is there an effect of student type (general education or special education) or placement (team-taught or not team-taught) on the teacher-preferred social behavior of 3rd, 4th, and 5th grade students? Does the effect of placement depend on student type?

Ho7 There will be no difference in teacher preferred social behavior between the special education students who

receive instruction in the team taught classroom and those who receive instruction in a special education classroom.

Reject

Ha7 There is a difference in teacher preferred social behavior between the special education students who receive instruction in the team taught classroom and those who receive instruction in a special education classroom.

Accept

Ho8 There will be no difference in teacher-preferred social behavior between the general education students in the team-taught classroom and those in a general education classroom where special education eligible students are pulled out for instruction.

Reject

Ha8 There is a difference in teacher-preferred social behavior between the general education students in the team-taught classroom and those in a general education classroom where special education eligible students are pulled out for instruction.

Accept

Ho9 The effect of treatment (team-taught or pull-out) on teacher-preferred social behavior will not depend on the type of student (general education or special education).

Accept

The histogram of teacher-preferred social behavior posttest showed a trimodal distribution of scores, as seen in Figure 7.

Figure 7

HISTOGRAM OF TEACHER-PREFERRED SOCIAL BEHAVIOR POSTTEST SCORES

```
        N=136
Midpoint   Count

       0       5   *****
      10      13   *************
      20      15   ***************
      30      12   ************
      40      11   ***********
      50      16   ****************
      60      20   ********************
      70      16   ****************
      80       9   *********
      90      11   ***********
     100       8   ********
```

Plots of teacher-preferred social behavior against each covariate were done to determine whether a linear relationship existed between teacher-preferred social behavior and the covariate. The plots showed a positive linear relationship between teacher-preferred social behavior and all covariates.

The correlation of teacher-preferred social behavior posttest with each covariate was:

Grade	-	.091
Gender	-	.076
Mother's Education Level	-	.258
Socio-economic Status	-	.385
Age	-	.189
Teacher-preferred Social Pretest	-	.772

Because the inclusion of any covariate except teacher-preferred social behavior pretest would increase the variance attributable to error, teacher-preferred social behavior was the only covariate used in the ANCOVA.

Table 9 presents the observed means and the means adjusted for the covariate, teacher-preferred social behavior pretest.

Table 9

MEANS OF TEACHER-PREFERRED SOCIAL BEHAVIOR POSTTEST BY GROUPS

Group	Observed Mean	Adjusted Mean
Teamed Special (n=34)	47.24	50.03
Nonteamed Special (n=34)	32.27	46.44
Teamed General (n=34)	71.53	56.88
Nonteamed General (n=34)	46.38	44.09
Special (n=68)	39.75	48.22
General (n=68)	58.96	50.48
Teamed (n=68)	59.38	53.44
Nonteamed (n=68)	39.32	45.26

To determine whether a statistically significant difference existed between the teacher-preferred social behavior posttest and placements and/or student types, an analysis of variance was performed on the adjusted mean scores. The result of this procedure is seen in Table 10. A significant difference was found for placement ($F=6.12$; $p<.05$). A significant difference between student types was

not found. No interaction effect between placement and student type was found.

Table 10

ANALYSIS OF VARIANCE OF MEANS OF TEACHER-PREFERRED SOCIAL BEHAVIOR POSTTEST

Source of Variance	df	MS	F	Significance of F
Placement	1	2052	61.20	.015
Student Type	1	143	.43	.515
Placement by Student type	1	723	2.16	.144
Error	131	335		

The histogram of errors revealed a normal distribution, as seen in Figure 8.

Figure 8

HISTOGRAM OF TEACHER-PREFERRED SOCIAL BEHAVIOR POSTTEST ERRORS

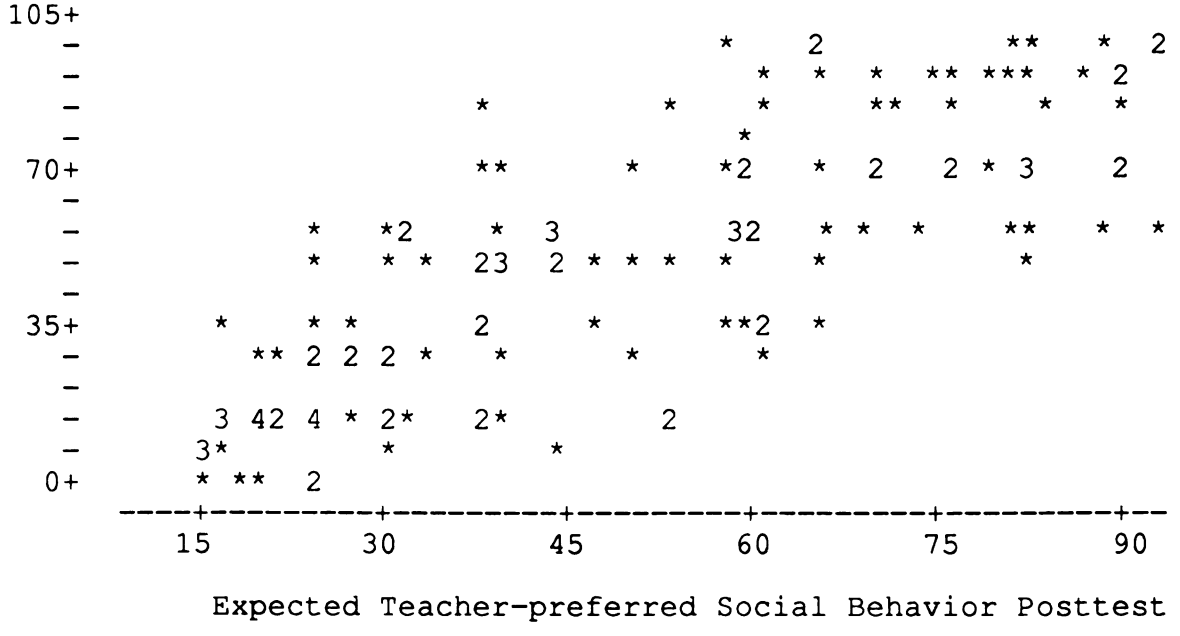
```
        N=136
Midpoint    Count

     -40        3    ***
     -30        5    *****
     -20       18    ******************
     -10       28    ****************************
       0       30    ******************************
      10       26    **************************
      20       12    ************
      30       12    ************
      40        1    *
      50        1    *
```

A plot of posttest scores against the expected posttest scores shows the homogeneity to be adequate (Figure 9). The correlation between actual teacher-preferred social behavior scores and expected teacher-preferred social behavior scores was .79.

Figure 9

PLOT OF TEACHER-PREFERRED SOCIAL BEHAVIOR POSTTEST SCORES BY EXPECTED TEACHER-PREFERRED SOCIAL BEHAVIOR POSTTEST SCORES



Research Question 4: Is there an effect of student type (general education or special education) or placement (team-taught or not team-taught) on the peer-preferred social behavior of 3rd, 4th, and 5th grade students? Does the effect of placement depend on student type?

Ho10 There will be no difference in peer-preferred social behavior between the special education students who receive instruction in the team-taught classroom and those who receive instruction in a special education classroom.

Accept

Ho11 There will be no difference in peer-preferred social behavior between the general education students in the team-taught classroom and those in a general education classroom where special education eligible students are pulled out for instruction.

Accept

Ho12 The effect of treatment (team-taught or pull-out) on peer-preferred social behavior will not depend on the type of student (general education or special education).

Accept

The histogram of peer-preferred social behavior posttest showed a quadmodal distribution of scores, as seen in Figure 10.

Figure 10

HISTOGRAM OF PEER-PREFERRED SOCIAL BEHAVIOR POSTTEST SCORES

```
        N=136
Midpoint   Count

       0       6   ******
      10      22   **********************
      20       7   *******
      30      13   *************
      40      10   **********
      50      12   ************
      60      21   **********************
      70      12   ************
      80      11   ***********
      90      14   **************
     100       8   ********
```

Plots of peer-preferred social behavior against each covariate were done to determine whether a linear relationship existed between peer-preferred social behavior and the covariate. The plots showed a positive linear relationship between peer-preferred social behavior and all covariates. The correlation of peer-preferred social behavior posttest with each covariate was:

Grade -	.057
Gender -	.065
Mother's Education Level -	.303
Socio-economic Status -	.427
Age -	.194
Peer-preferred Social Pretest -	.676

Because the inclusion of any covariate except peer-preferred social behavior pretest would increase the variance

attributable to error, peer-preferred social behavior was the only covariate included in the ANCOVA.

Table 11 presents the observed means and the means adjusted for the covariate, peer-preferred social behavior pretest.

Table 11

MEANS OF PEER-PREFERRED SOCIAL BEHAVIOR POSTTEST BY GROUPS

Group	Observed Mean	Adjusted Mean
Teamed Special (n=34)	40.21	46.63
Nonteamed Special (n=34)	37.03	46.60
Teamed General (n=34)	72.85	57.91
Nonteamed General (n=34)	47.70	46.65
Special (n=68)	38.62	46.61
General (n=68)	60.28	52.29
Teamed (n=68)	56.53	52.27
Nonteamed (n=68)	42.37	46.63

To determine whether a statistically significant difference existed between the peer-preferred social behavior posttest and placements and/or student types, an analysis of

variance was performed on the adjusted mean scores. The result of this procedure is seen in Table 12. No significant differences were found between student types or placement.

Table 12

ANALYSIS OF VARIANCE OF MEANS OF PEER-PREFERRED SOCIAL BEHAVIOR POSTTEST

Source of Variance	df	MS	F	Significance of F
Placement	1	1009	2.00	.160
Student Type	1	868	1.72	.192
Placement by Student type	1	1048	2.07	.153
Error	131	505		

The histogram of errors showed a bimodal distribution, as seen in Figure 11.

Figure 11

HISTOGRAM OF PEER-PREFERRED SOCIAL BEHAVIOR POSTTEST ERRORS

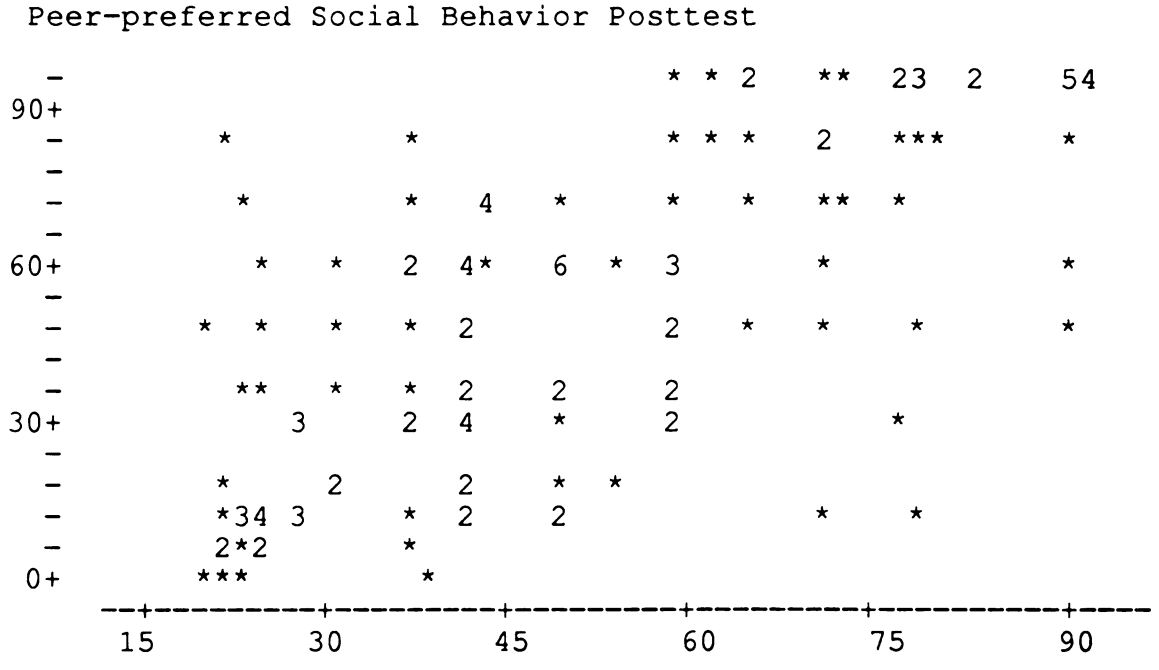
N=136

Midpoint	Count	
-70	1	*
-60	1	*
-50	1	*
-40	4	****
-30	10	**********
-20	17	*****************
-10	25	*************************
0	16	****************
10	26	**************************
20	20	********************
30	10	**********
40	2	**
50	2	**
60	1	*

A plot of posttest scores against the expected posttest scores shows the homogeneity to be adequate (Figure 12). The correlation between actual peer-preferred social behavior scores and expected teacher-preferred social behavior scores was .69.

Figure 12

PLOT OF PEER-PREFERRED SOCIAL BEHAVIOR POSTTEST SCORES BY EXPECTED PEER-PREFERRED SOCIAL BEHAVIOR POSTTEST SCORES



Research Question 5: Is there an effect of student type (general education or special education) or placement (team-taught or not team-taught) on the school adjustment behavior of 3rd, 4th, and 5th grade students? Does the effect of placement depend on student type?

Ho13 There will be no difference in school adjustment behavior between the special education students who receive instruction in the team-taught classroom and those who receive instruction in a special education classroom.

Reject

Ha13 There is a difference in school adjustment behavior between the special education students who receive instruction in the team-taught classroom and those who receive instruction in a special education classroom.

Accept

Ho14 There will be no difference in school adjustment behavior between the special education students who receive instruction in the team-taught classroom and those who receive instruction in a special education classroom.

Reject

Ha14 There is a difference in school adjustment behavior between the special education students who receive instruction in the team-taught classroom and those who receive instruction in a special education classroom.

Accept

Ho15 The effect of treatment (team-taught or pull-out) on school adjustment behavior will not depend on the type of student (general education or special education).

Accept

The histogram of school adjustment behavior showed a bimodal positively skewed distribution. The distribution is positively skewed because twenty-seven of the one-hundred,

thirty-four subjects were rated at the highest possible percentile for school adjustment behavior. The histogram appears in Figure 13.

Figure 13

HISTOGRAM OF SCHOOL ADJUSTMENT BEHAVIOR POSTTEST SCORES

```
        N=136
Midpoint   Count

       0       2   **
      10      12   ************
      20      14   **************
      30      19   ********************
      40      16   ****************
      50      17   *****************
      60      11   ***********
      70      18   ******************
      80       0
      90      27   ***************************
```

Plots of school adjustment behavior against each covariate were done to determine whether a linear relationship existed between school adjustment behavior and the covariate. The plots showed a positive linear relationship between school adjustment and all covariates. The correlation of school adjustment behavior posttest with each covariate was:

Grade -	.060
Gender -	.176
Mother's Education Level -	.251
Socio-economic Status -	.389
Age -	.226
School Adjustment Behavior Pretest-	.776

Because the inclusion of any covariate except school adjustment behavior pretest would increase the variance attributable to error, the only covariate included in the ANCOVA was school adjustment behavior pretest.

Table 13 presents the observed means and the means adjusted for the covariate, school adjustment behavior pretest.

Table 13

MEANS OF SCHOOL ADJUSTMENT BEHAVIOR POSTTEST BY GROUPS

Group	Observed Mean	Adjusted Mean
Teamed Special (n=34)	41.29	46.92
Nonteamed Special (n=34)	27.03	42.17
Teamed General (n=34)	67.29	54.16
Nonteamed General (n=34)	52.21	44.57
Special (n=68)	34.16	44.55
General (n=68)	59.75	49.37
Teamed (n=68)	54.29	50.54
Nonteamed (n=68)	39.69	43.37

To determine whether a statistically significant difference existed between the school adjustment behavior posttest and placements and/or student types, an analysis of variance was performed on the adjusted mean scores. The result of this procedure is seen in Table 14. A significant difference was found for placement ($F=6.31$; $p<.05$). A significant difference was not found for student type. The interaction of placement and student type was not significant.

Table 14

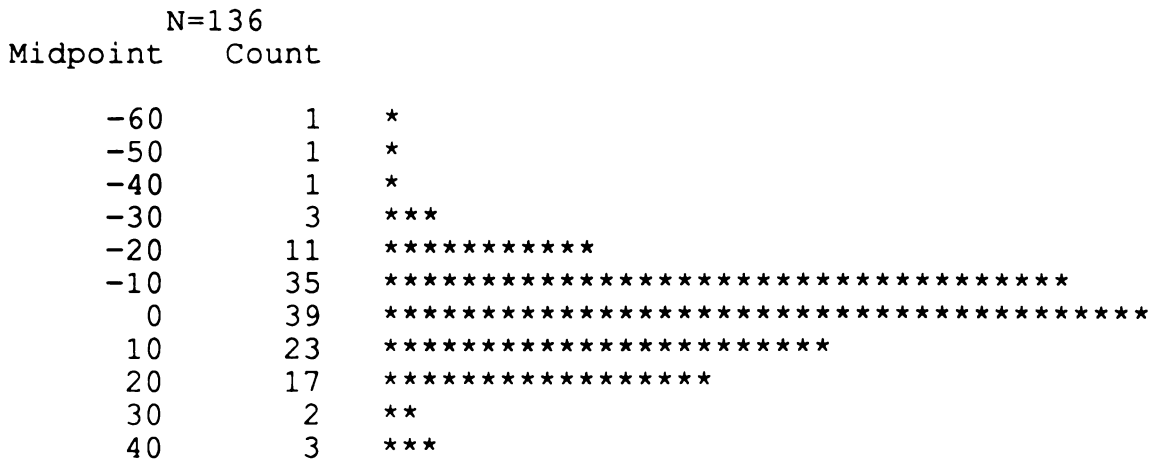
ANALYSIS OF VARIANCE OF MEANS OF SCHOOL ADJUSTMENT BEHAVIOR POSTTEST

Source of Variance	df	MS	F	Significance of F
Placement	1	1633	6.13	.013
Student Type	1	514	1.99	.161
Placement by Student type	1	198	0.77	.383
Error	131	259		

The histogram of errors showed a normal distribution, as seen in Figure 14.

Figure 14

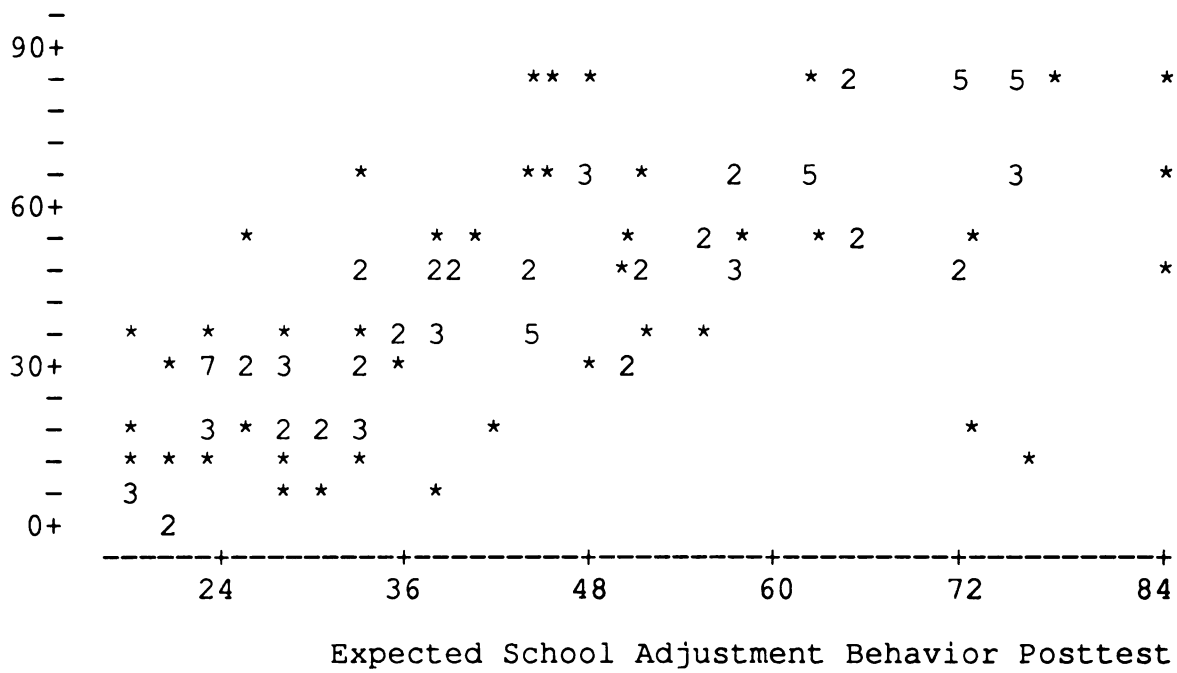
HISTOGRAM OF SCHOOL ADJUSTMENT BEHAVIOR POSTTEST ERRORS



A plot of posttest scores against the expected posttest scores showed the homogeneity to be adequate (Figure 15). The correlation between actual school adjustment behavior scores and expected school adjustment behavior scores was .79.

Figure 15

PLOT OF SCHOOL ADJUSTMENT BEHAVIOR POSTTEST SCORES BY EXPECTED SCHOOL ADJUSTMENT BEHAVIOR POSTTEST SCORES



Summary

Results of data in response to each of the five research questions were presented. Summarizing the data by individual questions:

Research Question 1: Is there an effect of student type (general or special education) or placement (team-taught or not team-taught) on the math achievement of 3rd, 4th, and 5th grade students? Does the effect of placement depend on student type?

All three null hypotheses generated from the research question were accepted.

Research Question 2: Is there an effect of student type (general or special education) or placement (team-taught or not team-taught) on the reading achievement of 3rd, 4th, and 5th grade students? Does the effect of placement depend on student type?

All three null hypotheses generated from the research question were accepted.

Research Question 3: Is there an effect of student type (general education or special education) or placement (team-taught or not team-taught) on the teacher-preferred social behavior of 3rd, 4th, and 5th grade students? Does the effect of placement depend on student type?

A significant difference ($p < .05$) was found for placement favoring the team-taught students. No significant differences were found for student type or the interaction of student type and placement.

Research Question 4: Is there an effect of student type (general eduction or special eduction) or placement (team-taught or not team-taught) on the peer-preferred social behavior of 3rd, 4th, and 5th grade students? Does the effect of placement depend on student type?

All three null hypotheses generated from the research question were accepted.

Research Question 5: Is there an effect of student type (general education or special education) or placement (team-taught or not team-taught) on the school adjustment behavior of 3rd, 4th, and 5th grade students? Does the effect of placement depend on student type?

A significant difference ($p<.05$) was found for placement favoring the team-taught students. No significant differences were found for student type or the interaction of student type and placement.

Chapter 5 will present a discussion of results, conclusions, and recommendations.

CHAPTER V

DISCUSSION, CONCLUSIONS, AND RECOMMENDATIONS

This chapter will present the final culmination of the research study in three main sections: (1) discussion, (2) conclusions, and (3) recommendations.

Discussion

Introduction

Discussion of the study's results will be conducted by examining each of the five research questions. However, it is important to note certain limitations. Three limitations to the study will be discussed: (a) the use of a quasi-experimental research design; (b) the use of the individual student as the unit of analysis; and (c) the lack of correlation between posttests and the suspected confounding variables which led to the use of only one covariate per ANCOVA, the pretest.

The first limitation relates to the use of a quasi-experimental research design as opposed to a true experimental research design. A quasi-experimental research design can only approximate the conditions of the true experiment in a setting which does not allow the control and/or manipulation of all relevant variables. Compromises exist in the internal and external validity of the quasi-experimental design. The

threats to internal validity of the present study were: (1) contemporary history--Sometimes the subjects experience an event, in or out of the experimental setting, other than the exposure to treatment, that may affect their dependent variable scores. (2) maturation processes--Biological and psychological processes within the subjects may change during the progress of the experiment which will affect their responses. (3) pretest procedures--The pretest may serve as a learning experience that will cause the subjects to alter their responses on the posttest, whether or not the treatment is applied (Isaac & Michael, 1989).

The threats to external validity in the present study were: (1) interaction effects of selection biases and the treatment--The characteristics of the subjects who are selected to participate in an experiment determine how extensively the findings can be generalized. In the present study, subjects were not randomly selected, but rather were members of intact classrooms in intact schools. Because of the non-randomized nature of this study, the results can only be generalized to students outside the sample with caution. (2) reactive or interaction effect of pretesting--Giving a pretest may limit the generalizability of the experimental findings because the pretest may increase or decrease the experimental subjects sensitiveness to the treatment (Isaac & Michael, 1989).

The second limitation concerns the decision to use the individual student as the unit of analysis, as opposed to the class or school. Three general types of considerations in selecting the unit of analysis are suggested by Haney (1974) in Burstein (1980): (1) the purpose of the evaluation design (nature of treatments, independence of units and treatment effects, appropriate size), (2) statistical considerations (reliability of measures, degrees of freedom, analysis techniques), and (3) practical considerations (missing data, economy). The decision to use the individual student as the unit of analysis in the present study was based on all three of these considerations. The researcher's purpose in the study was to assess the effect on individual student achievement in the areas of reading, math, and social skills. The evaluation design assumes that the effect of teaming is an aggregation of effects on individuals, not on the class as a whole. Statistical considerations include degrees of freedom and analytical techniques. To have not used individual students as the unit of analysis and have the same degrees of freedom in the analysis the study would have required one-hundred and thirty-eight elementary schools, half of which practiced team teaching with general education and special education teachers. Aside from the practical considerations of how the researcher would carry out such a study, finding that number of elementary schools doing the type of team teaching that is the focus of this study would likely not be

possible. And finally, the use of the pretest as a covariate, which substantially decreased the variance due to error in the analysis, would not have been possible had the unit of analysis been the classroom or the school. In summary, two options as to unit of analysis confronted the researcher: (1) Identify the population for Michigan (all 3rd, 4th, and 5th grade classrooms and ascertain which have fully integrated mildly disabled students and are using team teaching) and randomly chose a sample population; or (2) use intact classes and attempt to control for confounding variables, i.e., using a pretest as a covariate. The choice of the second option was made with the knowledge that threats to both internal and external validity to the study were present.

The third limitation, the lack of correlation between the posttests and the suspected confounding variables, can only be speculated upon. The possibility existed that the covariates mother's education level and socio-economic status, both of which frequently appear as covariates in reported education research, were not accurately measured. Mother's education level was obtained for the study from students' cumulative school records or from phone calls to parents when the student record was missing the information. Each of these is a form of self-reporting which may not have been accurate in all instances. Socio-economic status was judged by whether a student qualified for a free or reduced lunch. In order to qualify for free or reduced lunch, a parent must make

application to the school district. The application process did not require any written proof of the income or family size reported. Some families which would qualify for free or reduced lunches may not have applied. The possibility exists, then, that using free, reduced, or full pay lunch was not an accurate measure of socio-economic status.

At first consideration, the lack of sufficient correlation between posttest and grade, and posttest and age, would be surprising. But in the present study, these variables are less meaningful than if groups of all general education students were being considered. The academic achievement level of individual special education students logically would have a large variance in the population of all 3rd, 4th, and 5th grade students. It is important to note that special education students are placed at a particular grade level due to age, not academic achievement.

The use of the pretest as the sole covariate in an analysis of covariance is a frequently utilized practice (Glass and Hopkins, 1984; Isaac & Michael, 1989).

The above limitations indicate that the results of this study are statistically limited to the population parameter of the 136 students in the sample. However, the results may be used as an indication of potential effects on elementary students where team teaching is utilized.

Research Question 1: Is there an effect of student type (general or special education) or placement (team-taught or

not team-taught) on the math achievement of 3rd, 4th, and 5th grade students? Does the effect of placement depend on student type?

Although no significant difference between teamed and nonteamed students was found, an examination of the adjusted mean math posttest scores revealed that the difference between teamed and nonteamed students, both general and special education, was less than 1%. The concern as to whether the full integration of special education students into general education classrooms will negatively impact on the academic achievement of general education students is not supported in this case.

That a significant difference was found for student type was not unanticipated. It is a reasonable assumption that, on average, general education students would outperform special education students on a measure of math achievement.

Research Question 2: Is there an effect of student type (general or special education) or placement (team-taught or not team-taught) on the reading achievement of 3rd, 4th, and 5th grade students? Does the effect of placement depend on student type?

An examination of the adjusted means for the reading posttest revealed an approximate 2% difference between teamed and nonteamed students. This was not significantly different but, as with the math posttest results, general education students in classrooms with fully integrated special education

students were not negatively impacted on reading achievement in this study. General education students, on average, outperformed special education students on the reading achievement. Again, as with math achievement, this outcome seemed reasonable to expect.

The significance of the F statistic (2.00) for placement was p=.160. This p indicates that the teamed special education students had a higher adjusted mean than the nonteamed special education students, the teamed general education students had a higher adjusted mean than the nonteamed general education students, and only a 16% chance existed that these adjusted means were in error.

Research Question 3: Is there an effect of student type (general education or special education) or placement (team-taught or not team-taught) on the teacher-preferred social behavior of 3rd, 4th, and 5th grade students? Does the effect of placement depend on student type?

Teacher-preferred social behavior was defined as peer-related social behavior valued or preferred by teachers. This construct was assessed through teacher rating of individual students (on a 1-5 Likert scale with 1 = never, 3 = sometimes, and 5 = frequently) on the following statements:

1. Shows sympathy for others.
2. Compromises with peers when the situation calls for it.
3. Responds to teasing or name calling by ignoring, changing the subject, or some other constructive means.

4. Accepts constructive criticism from peers without becoming angry.
5. Is sensitive to the needs of others.
6. Expresses anger appropriately (e.g., reacts to situation without becoming violent or destructive).
7. Appropriately copes with aggression from others (e.g., tries to avoid a fight, walks away, seeks assistance, defends self).
8. Cooperatives with peers in group activities or situations.
9. Uses physical contact with peers appropriately.
10. Listens while others are speaking (e.g., as in circle or sharing time).
11. Controls temper.
12. Can accept not getting her/his own way.
13. Finds another way to play when requests to join others are refused.
14. Is considerate of the feelings of others.
15. Gains peers' attention in an appropriate manner.
16. Accepts suggestions and assistance from peers.

Teamed students showed significantly greater gains between pretest and posttest, on average, for teacher preferred behavior than did nonteamed students. This was true for both general education students and special education students, as indicated by the interaction effect between placement and student type which was not significant. This

indicates teamed students displayed more peer-related social behavior valued or preferred by teachers than did nonteamed students.

The difference between teamed and nonteamed general education students (12.79 percentile ranks) was substantially larger than the difference between teamed and nonteamed special education students (3.59 percentile ranks).

Research Question 4: Is there an effect of student type (general education or special education) or placement (team-taught or not team-taught) on the peer-preferred social behavior of 3rd, 4th, and 5th grade students? Does the effect of placement depend on student type?

Peer-preferred social behavior was defined as peer-related social behavior highly valued by peers. This construct was assessed through teacher rating of individual students (on a 1-5 Likert scale with 1 = never, 3 = sometimes, and 5 = frequently) on the following statements:

1. Other children seek child out to involve her/him in activities.
2. Changes activities with peers to permit continued interaction.
3. Shares laughter with peers.
4. Makes friends easily with other children.
5. Asks questions that request information about someone or something.
6. Spends recess and free time interacting with peers.

7. Plays or talks with peers for extended periods of time.
8. Voluntarily provides assistance to peers who require it.
9. Assumes leadership role in peer activities.
10. Initiates conversation(s) with peers in informal situations.
11. Interacts with a number of different peers.
12. Compliments others regarding personal attributes (e.g., appearances, special skills, etc.).
13. Is socially perceptive (e.g., reads social situations accurately).
14. Plays games and activities at recess skillfully.
15. Keeps conversation with peers going.
16. Maintains eye contact when speaking or being spoken to.
17. Invites peers to play or share activities.

Although adequate significance was not found to support an effect for teaming on peer-preferred social behavior, the adjusted mean posttest scores for teamed students was at the 52.27th percentile while the adjusted mean posttest score for nonteamed students was at the 46.63rd percentile, with a 16% chance that this difference was due to error (p=.160).

There was virtually no difference (.03% of 1 percentile) between teamed and nonteamed special education students, but a substantial difference of 11.26 percentiles between teamed and nonteamed general education students.

Research Question 5: Is there an effect of student type (general education or special education) or placement (team-taught or not team-taught) on the school adjustment behavior of 3rd, 4th, and 5th grade students? Does the effect of placement depend on student type?

School adjustment behavior was defined as adaptive social-behavioral competencies highly valued by teachers within classroom instructional settings. The construct was assessed through the teacher rating of individual students (on a 1-5 Likert scale with 1 = never, 3 = sometimes, 5 = frequently) on the following statements:

1. Uses free time appropriately.
2. Has good work habits (e.g., is organized, makes efficient use of class time, etc.).
3. Listens carefully to teacher instructions and directions for assignments.
4. Answers or attempts to answer a question when called on by the teacher.
5. Displays independent study skills (e.g., can work adequately with minimum teacher support).
6. Responds to conventional behavior management techniques (e.g., praise, reprimands, timeout).
7. Responds to requests promptly.
8. Attends to assigned tasks.
9. Does seatwork assignments as directed.

10. Produces work of acceptable quality given her/his skills level.

A significant difference was found between teamed and nonteamed students on the measure of school adjustment behavior. Both teamed special education students (adjusted posttest mean - 46.92) and teamed general education students (adjusted posttest mean - 54.16) had a higher adjusted posttest mean than either nonteamed special education students (adjusted posttest mean - 42.17) or nonteamed general education students (adjusted posttest mean - 44.57). The adjusted posttest mean for teamed students was at the 50.54th percentile rank, and the adjusted posttest mean for nonteamed students was at the 43.37th percentile rank. These percentiles indicated teamed students displayed adaptive social-behavioral competencies highly valued by teachers within classroom instructional settings more frequently than nonteamed students did.

In summary, the teamed students had higher adjusted mean scores on four of the five measures. On two of these four measures on which higher adjusted scores were found, teacher-preferred social behavior and school adjustment behavior, the difference between the adjusted posttest means were found to be significant at $p<.05$. The adjusted means for teamed and nonteamed general and special education students combined on each of the five measure are graphed in Figure 16. The adjusted means for teamed and nonteamed special education

students are graphed in Figure 17. Figure 18 shows the graphed adjusted means for teamed and nonteamed general education students.

FIGURE 16

ADJUSTED POSTTEST MEANS FOR TEAMED AND NONTEAMED STUDENTS

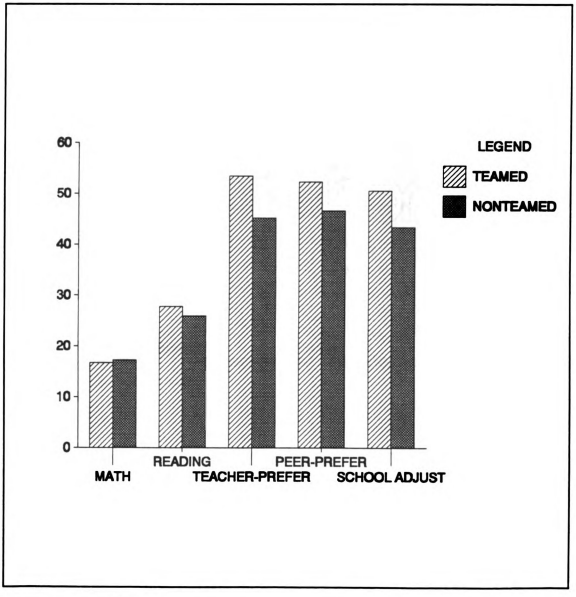


FIGURE 17

ADJUSTED POSTTEST MEANS FOR TEAMED AND NONTEAMED SPECIAL EDUCATION STUDENTS

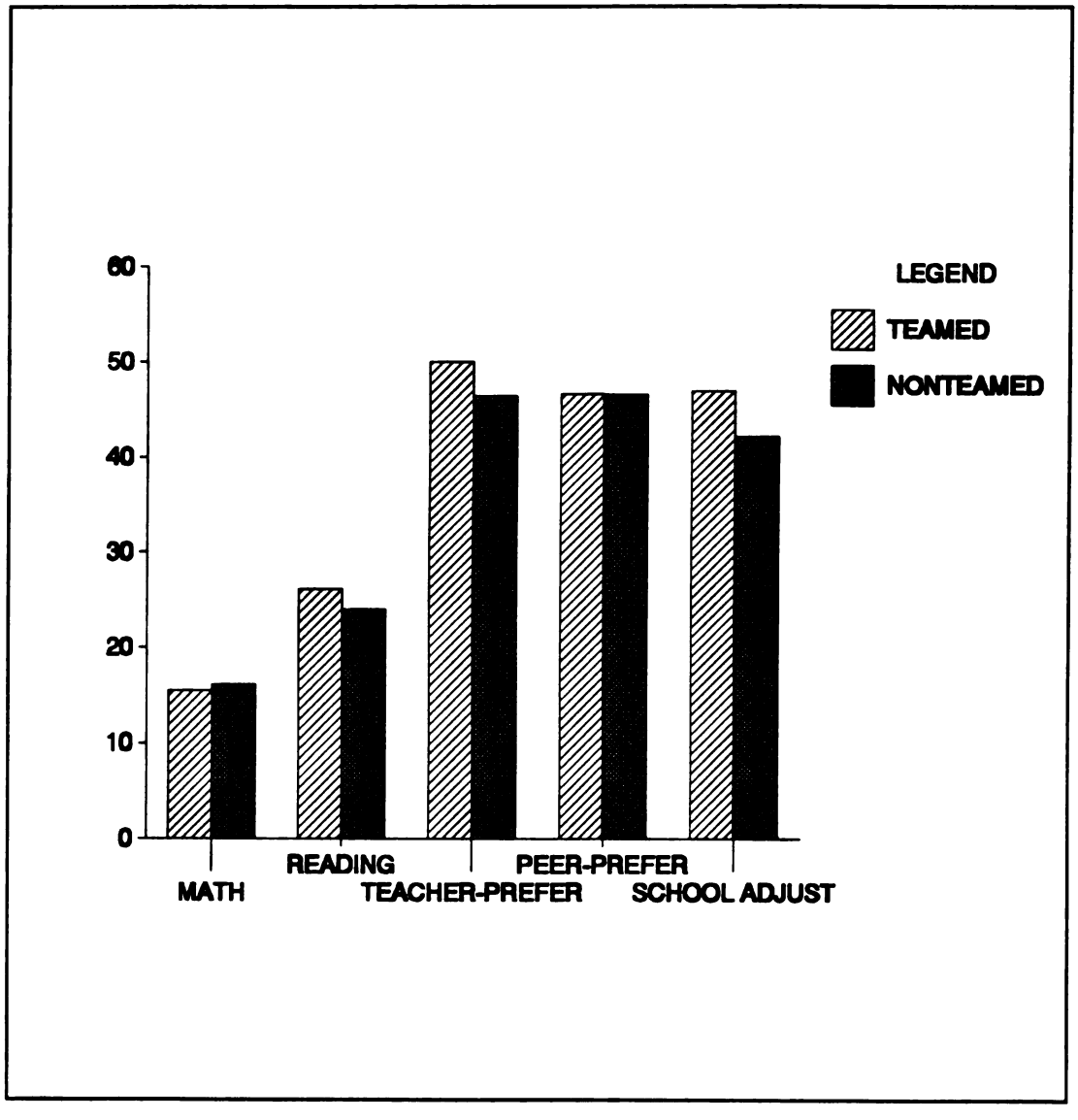
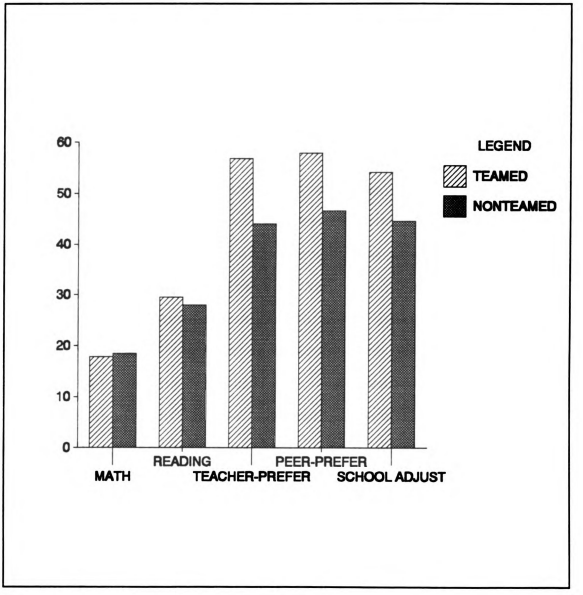


FIGURE 18

ADJUSTED POSTTEST MEANS FOR TEAMED AND NONTEAMED GENERAL EDUCATION STUDENTS



Conclusions

Based on the results of this study, the following conclusions can be drawn:

1. General education students' math and reading achievement is not significantly different when mildly disabled students are fully integrated into general education classrooms than when the mildly disabled students receive academic instruction in special education classrooms, when the general education classroom is team-taught by a general education/special education teaching team.

The mean difference between teamed and nonteamed general education students in math achievement was less than 2% on the math measure. The difference was less than 1%, when the posttest scores were adjusted for the pretest. The mean difference between teamed and nonteamed general education students in reading achievement was less than 3% on the reading measure. After the posttest scores was adjusted for the pretest scores, the difference was 1.5%. This conclusion does not support the concern of some regular education initiative opponents that the full integration of mildly handicapped students into general education classrooms will have a negative effect, academically, on general education students.

2. Special education students' math and reading achievement is not significantly different when they are fully integrated into general eduction classrooms than when they are

provided academic instruction in special education classrooms. The mean difference between teamed and nonteamed general education students in reading achievement was 3% on the reading measure. When the posttest scores were adjusted for the pretest, the difference was just over 3%. In this study, teamed special education students outperformed nonteamed special education students on the reading measure, with a 16% chance that the difference was attributable to error. The mean difference between teamed and nonteamed special education students in math achievement was less than 1% different, favoring nonteamed with a 30% chance that the difference was attributable to error. This study supports critics of the 'pull-out' service delivery model for special education students.

3. Improvement is shown in the social skills behavior of both special education and general education students in a team-taught classroom to a greater degree than when special and general education students are not team-taught. The differences are in teacher-preferred social behavior and school adjustment with peer-preferred social behavior not significantly different for teamed or nonteamed students.

Proponents of the Regular Education Initiative, and others who propose new service delivery models for mildly handicapped students, focus on the potential social benefits for the students who are handicapped. This study showed benefits in teacher-preferred social behavior not only for

special education students, but for general education students as well. The fears of some, that the educational process would be disrupted for general education students and that special education students would not have the necessary social skills to be successful in the integrated classroom, are not supported by this study.

This study lends support to the observations of the team teachers' perception that teaming provides opportunities for students which lead to improved social skills including: students learning to work cooperatively with those of both higher and lower ability than themselves; special education students being less identifiable and, therefore, less ostracized by peers; students learning to acknowledge and accept other students' strengths and weaknesses; more appropriate role models for special education students; and increased self-esteem for students who peer tutor.

Recommendations

Team teaching as a means of integrating students who are mildly handicapped is supported by this study, but the published research on this type of team teaching is lacking. Quantitative research on the topic must continue if teaming is to become widely accepted as a service delivery model for students with mild disabilities. Quantitative research of a longitudinal nature is necessary to assess whether differences

between teamed and nonteamed students exist over an extended period of time.

This study focused on quantifiable areas of student achievement. Research of a more qualitative nature should be undertaken which would allow the researcher "...to investigate and gain an understanding of how a program operates, how it developed, and why a program did or did not work" (Stainback & Stainback, 1988b). Process, as well as products, can be gained through the holistic descriptions possible in qualitative inquiry.

Research, both quantitative and qualitative, to assess team-taught general education and special education students' self-esteem would add an important variable for consideration when decisions are made regarding the service delivery model to be utilized for students who are mildly disabled.

APPENDICES

APPENDIX A

APPENDIX A

BASS START-UP INSTRUCTIONS

Distribute answer booklets to each student facedown on their desks. Verify that each student has a pencil.

Say to the students: "Today I am going to collect some samples of your work in math and reading. On each sample, you should just do the best you can. This is not a test and you will not receive a grade. You just need to do the best you can on each. You each have an answer booklet. **Do not** open it until I say to do so.

On the front page of your booklet, write your name on the top line.

Now write your teacher's name(s) on the next line.

Write your school on the next line.

Finally, write your grade on the last line."

Point to the appropriate line for each item. Monitor the students for compliance. MAKE SURE THEIR NAME IS ON THE BOOKLET.

Say to the students: "Now we will begin. Please make sure to listen to my instructions carefully."

Proceed with testing.

COMMON MATH PROBES

Directions For Administration

Math Probe 1

Say to the students: "Turn to page 1 in your booklet. Keep your pencils down. Please listen to these directions but wait until I tell you to start. On this page there are several kinds of arithmetic problems. Some are addition and subtraction and some are multiplication and division. **Don't worry if you cannot do some problems. Just do as well as you can.**"

"Look at each problem carefully before you answer it. Start on the first problem at the top and work across that row, then begin the next row. TRY EVERY PROBLEM. If you come to one you cannot answer, you can put an X on it and go on to the next, BUT YOU MUST TRY EACH PROBLEM. Remember to look at each problem and put an X on it if you can't do it. You have 1 minute to work. Are there any questions?"

Say to the students: "Ready? Begin." Start stopwatch AS YOU SAY BEGIN.

Math Probe 2

Say to the students: "Now you will try one more math page. Remember to start on the first problem at the top and work across that row, then begin the next row. TRY EVERY PROBLEM. If you come to one you cannot answer, you can put an X on it and go on to the next, but TRY EACH PROBLEM. Ready? Begin."

After 1 minute say: "Stop. Thank you, put your pencil down."

NOTE: 1. Monitor students carefully to see that they follow directions by walking around the room and observing students throughout the timing.

2. Be sure they are going across the row and attending to each problem.

READING: CLOZE

EXAMPLES

Say to the students: "The story you are going to read has some places where you need to choose the correct word. You will read the story, and whenever you come to three words that are underlined and in dark print, you will choose the word that belongs in the sentence."

"Before we begin, we will do some examples. Turn to page 3 in your booklet. The first sentence says:

Bill threw the ball to Jane. Jane caught the dog / bat / ball.

Which one of the three words belongs in the sentence?"

Following student response say: "The correct word is ball, **Bill threw the ball to Jane. Jane caught the ball.** Circle the word ball."

Monitor the students for compliance.

Say to the students: "Now let's try sentence number two. The sentence says:

Tom said, Now you jump / throw / talk the ball to me.

Which of the three words belongs in the sentence?"

Following student response say: "The correct word is throw. **Tom said, Now you throw the ball to me.** Circle the word throw."

Point to the word. Monitor students for compliance.

CLOZE PASSAGES

Passage 1

Say to the students: "Put your pencils down and listen to my directions. Now you are going to do the same thing by yourself. You will read a story. Whenever you come to three words that are underlined and in dark print, circle the word that belongs in the sentence. Choose a word even if you're not sure of the answer. At the end of 1 minute, I will tell you to stop working. If you finish early, check your answers. Do not go on to the next page. You may begin when I tell you to. Are there any questions? Turn to page 4 in your booklet."

Monitor students to make sure they are on "Kicking Stones."

Say to the students: "Remember to do the best you can. Pick up your pencils. Ready? Begin."

After 30 seconds, give students the following prompt:

"Remember, choose a word, even if you're not sure of the answer."

After 1 minute say: "Stop. Put your pencils down."

Passage 2

Say to the students: "Now you will do the same thing on another passage. Remember to choose the word that belongs in the sentence. Choose a word even if you're not sure of the answer. You may begin when I tell you to. Turn to page 5 in your booklet."

Monitor students to make sure they are on "Saturday."

Say to the students: "Remember to do the best you can. Pick up your pencils. Ready? Begin."

After 30 seconds, give students the following prompt:

"Remember, choose a word, even if you're not sure of the answer."

After 1 minute say: "Stop. Put your pencils down."

Passage 3

Say to the students: "Now you will try one more passage. Do the same as before: Choose the word that belongs in the sentence. Choose a word even if you're not sure of the answer. Turn to page 6 in your booklet.

Monitor students to make sure they are on "Me Too."

Say to the students: "Remember to do the best you can. Pick up your pencils. Ready? Begin."

After 30 seconds, give students the following prompt:

"Remember, choose a word, even if you're not sure of the answer."

After 1 minute say: "Stop. Put your pencils down. Close your booklet. Thank you."

Collect all materials.

NOTE:
1. Do not forget to give the following prompt after 30 seconds has passed, "Remember, choose a word,even if you're not sure of the answer."
2. If students ask you to identify a word, remind them to just do the best they can.

Basic Academic Skills Samples

B A S S

STUDENT ANSWER BOOKLET

Name_____

Teachers_____

School_____

Grade_____

Math	_____	_____
Reading	_____	_____

COMMON MIXED MATH PROBE I

1	5	5	14	4	1	4		4	
x 7	- 0	+ 2	- 8	+ 7	x 3	- 2	3) 3	+ 1	7) 14
0		13	3	16		9	5		
+ 2	5) 35	- 9	x 3	- 9	4) 20	x 6	+ 5	5) 25	9) 72
7	7	15	7	7		2		6	8
x 5	x 4	- 7	+ 1	x 3	6) 12	+ 7	6) 54	- 1	x 6
5	11	0		14		6	8	6	1
+ 9	- 9	x 2	1) 5	- 5	4) 32	x 4	- 5	+ 6	+ 9
6	8	2		2	14		1		
x 9	- 4	x 8	5) 30	+ 4	- 9	5) 20	+ 5	4) 16	3) 6
1	9	10	9	7	6	0			2
+ 0	- 3	- 5	+ 8	x 6	x 2	+ 7	1) 6	4) 8	x 7
12	11		3		6		10	5	0
- 4	- 8	8) 72	+ 6	7) 56	x 7	9) 45	- 4	+ 0	+ 6
6	6	6	0	10	0		6	3	7
- 2	- 0	x 0	x 3	- 3	x 7	8) 32	+ 3	+ 8	x 4

COMMON MIXED MATH PROBE II

8 - 7	6 + 8	8 - 1	5 + 3	7)56	9 - 0	0 + 9	4)8	3 + 7	6 x 3
2 x 4	8 x 7	1)5	5 + 8	13 - 5	2 x 3	8 - 0	3 x 0	2)6	4)28
6)24	8 - 5	5 + 7	3)12	1)4	4 - 2	0 + 5	3 + 1	0 x 9	3)3
6)6	9 x 5	6)24	6 + 2	9 + 5	0 x 7	4)36	8 x 2	1 + 2	1 + 7
6)0	8)72	6 - 0	7 + 4	6 + 4	7 - 6	7)49	2 x 8	9 - 2	11 - 2
9 x 8	8)16	4 + 9	2)6	0 x 8	7 + 7	3 - 2	8 - 8	5 + 6	5)45
9 x 7	0 + 3	4)32	14 - 9	17 - 8	3 x 1	11 - 6	2 x 1	7 + 3	11 - 5
4)0	18 - 9	7 x 8	4 x 4	8 x 8	1 + 0	9 x 9	5 - 4	15 - 9	9 x 4

EXAMPLES OF CLOZE PROCEDURE

1. Bill threw the ball to Jane. Jane caught the {dog / bat / ball}.

2. Tom said, "Now you {jump / throw / talk} the ball to me."

KICKING STONES

Have you ever had nothing to do? Sometimes when I {say / have / run} nothing to do, I take a {walk / road / home}. That's when I kick stones. I {look / am / see} for cans to kick. If I {have / can't / went} find any cans to kick, I {little / under / just} kick stones. I look for big {cities / stones / water} to kick. I walk down the {duck / road / ship} kicking one stone after another. This {will / means / falls} I have nothing else I can {help / find / think} of doing.

Sometimes I walk around {but / and / the} house with nothing to do. My {tail / dad / food} sees me do this. Then he {says / gets / ran} I'm kicking stones again. I'm not kicking {real / night / grass} stones. But I'm acting like I'm {outside / going / trying} kicking stones. My dad doesn't want {me / his / they} to just do nothing. He wants {boys / her / me} to find something to do.

I {soon / used / when} to tell my dad when I {had / play / am} nothing to do. I would say, "{kitten / Dad / street} there's nothing to do." He would {run / ride / look} at me and smile. Then he {have / would / stop} say, "Good, go carry all those {logs / food / cities} over to the house." Now, I {until / always / under} think before I say, "Dad, I {have / going / run} nothing to do."

SATURDAY

When you're a kid Saturday is the best day of the week. That's the day that you have {free / loud / sad} time. It's also the day that {tree / you / bike} can sleep in the morning if {their / his / your} parents will let you. Of course, {on / if / by} you have a little brother the {bat / can / way} I do he probably won't let {you / him / her} sleep.

Even if my parents and {my / his / our} brother do let me sleep, I {play / have / go} a hard time staying in bed. {Feet / Dogs / There} are just too many things I {want / sing / let} to do when I have free {book / time / cat}.

Most of all, when Saturday comes {I / he / you} want to call my friends. They {went / have / are} just as excited about Saturday as {we / she / I} am. We have a problem, though. {Where / When / Why} we start calling each other on {red / big / the} telephone we usually find out that {each / four / my} one of us has a job {of / to / on} do or some place to go {with / by / into} our family. Our problem is that {him / me / we} have a hard time finding time {to / in / on} Saturday when all of us have {fat / free / blue} time to play at the same {time / box / rug}.

I don't know about you, but {how / when / who} my parents make plans for me {by / into / on} Saturday I don't like it. I {usually / very / fast} argue with them about what they {can / want / stop} me to do. Arguing with my {dolls / pets / parents} spoils all the fun of Saturday. {I / Us / He} wish they would call my friend's {girls / parents / cars} to find out what their Saturday {plans / toys / shoes} are. Then they could arrange it {on / so / to} that we all have free time {onto / if / at} the same time.

"ME, TOO!"

My little sister, Jan, is a "me too" girl. If I get myself a cookie, {I / we / she} says, "Me, too." If I come {stone / nest / home} eating a candy bar, she says, "{boy / ant / me}, too." When I watch a good {T.V. / ship / boot} show she says, "Me, too" and {eats / sits / lives} down to watch. She can't even {hide / said / read} yet but she gets to do {road / things / mice} that only older brothers should get {to / be / the} do.

She uses "Me too" all {but / the / and} time because it works. When I {drown / go / fall} for a walk, she gets to {wait / come / ask} along. When I play with a {friend / park / bread}, she gets to play, too. When {him / girls / I} paint pictures, she gets to paint, {too / fast / far}. I even have to take her {under / from / along} frog hunting. This has got to {see / say / stop}.

I have a plan. I've talked {for / to / over} my dad about this plan. He {takes / thinks / wants} it's a pretty good plan, too. {So / But / That} we begin whispering about something. Jan {runs / sings / knows} up and shouts, "Me, too. Me, {now / too / fast}." Dad says, "Yes, Jan, you too. {Ball / You / Sister} both shovel the snow from the {sidewalk / balloon / penny}." Jan's eyes open wide. "Me, too?" {woman / she / they} asks. "Yes!" says dad.

Next I'm {falling / going / seeing} to start whispering about cleaning my {room / king / head} and taking out the garbage!

College of Education

UNIVERSITY OF MINNESOTA
TWIN CITIES

Special Education Programs
Department of Educational Psychology
227 Burton Hall
178 Pillsbury Drive S.E.
Minneapolis, Minnesota 55455

(612) 624-2342

April 16, 1991

Ms. Cindi Smith
Assistant Director of Special Education
Fruitport community Schools
305 Pontaluna
Fruitport, Michigan 49415

Dear Ms. Smith:

Enclosed are the copies of the BASS and SCharS instruments. I am sorry about the delay in getting these to you. I had them ready to go, but they got buried under some papers, and I just discovered them again yesterday. We have modified the spelling measure because some of the sixth graders were hitting a ceiling. However, I sent you the original instrument because we do not have validity data on the new measures, and we did not use the measures in our research. If you would like a copy of the modified BASS, please call me and I can send one to you. Please use these instruments only for dissertation research. We do not release them for general use. If I can be of further assistance, please call me at 612-626-0352.

Sincerely,

Christine Espin, PhD
Assistant Professor
University of Minnesota

The Walker-McConnell Scale of Social Competence and School Adjustment

Profile/Rating Form

Hill M. Walker
Scott R. McConnell

I. Student Demographic Information

Date Administered: _____ Classroom Type: ☐ Regular ☐ Resource ☐ Self-contained ☐ Other _____

Student Name: _____ School: _____

Sex: ☐ Male ☐ Female Teacher: _____

Age: Years _____ Months _____ Grade: _____

II. Rating Instructions

Please read each item below carefully and rate the child's behavioral status in relation to it. If you have not observed the child displaying a particular skill or behavioral competency defined by an item, check *1*, indicating *Never*. If the child exhibits the skill at a high rate of occurrence, check *5*, for *Frequently*. If the child's frequency is in between these two extremes, check *2*, *3*, or *4*, indicating your best estimate of the rate of occurrence of the skill.

Please answer each item. **DO NOT MARK BETWEEN THE NUMBERS ON THE RATING SCALE.** Check one of the numbers from 1-5 to indicate your frequency estimate.

III. Items and Rating Formats

Subscale	Item	Rating Format: Never ... Sometimes ... Frequently
(2)	1. Other children seek child out to involve her/him in activities.	☐ ☐ ☐ ☐ ☐ 1 . . . 2 . . . 3 . . . 4 . . . 5
(2)	2. Changes activities with peers to permit continued interaction.	☐ ☐ ☐ ☐ ☐ 1 . . . 2 . . . 3 . . . 4 . . . 5
(3)	3. Uses free time appropriately.	☐ ☐ ☐ ☐ ☐ 1 . . . 2 . . . 3 . . . 4 . . . 5
(2)	4. Shares laughter with peers.	☐ ☐ ☐ ☐ ☐ 1 . . . 2 . . . 3 . . . 4 . . . 5
(1)	5. Shows sympathy for others.	☐ ☐ ☐ ☐ ☐ 1 . . . 2 . . . 3 . . . 4 . . . 5
(2)	6. Makes friends easily with other children.	☐ ☐ ☐ ☐ ☐ 1 . . . 2 . . . 3 . . . 4 . . . 5
(3)	7. Has good work habits (e.g., is organized, makes efficient use of class time, etc.).	☐ ☐ ☐ ☐ ☐ 1 . . . 2 . . . 3 . . . 4 . . . 5
(2)	8. Asks questions that request information about someone or something.	☐ ☐ ☐ ☐ ☐ 1 . . . 2 . . . 3 . . . 4 . . . 5

Additional copies of this form (#0738) may be purchased from PRO-ED, 5341 Industrial Oaks Blvd., Austin, Texas 78735, 512/892-3142.

Subscale	Item	Rating Format: Never		Sometimes		Frequently
(1)	9. Compromises with peers when situation calls for it.	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5
(1)	10. Responds to teasing or name calling by ignoring, changing the subject, or some other constructive means.	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5
(2)	11. Spends recess and free time interacting with peers.	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5
(1)	12. Accepts constructive criticism from peers without becoming angry.	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5
(2)	13. Plays or talks with peers for extended periods of time.	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5
(2)	14. Voluntarily provides assistance to peers who require it.	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5
(2)	15. Assumes leadership role in peer activities.	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5
(1)	16. Is sensitive to the needs of others.	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5
(2)	17. Initiates conversation(s) with peers in informal situations.	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5
(1)	18. Expresses anger appropriately (e.g., reacts to situation without becoming violent or destructive).	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5
(3)	19. Listens carefully to teacher instructions and directions for assignments.	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5
(3)	20. Answers or attempts to answer a question when called on by the teacher.	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5
(3)	21. Displays independent study skills (e.g., can work adequately with minimum teacher support).	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5
(1)	22. Appropriately copes with aggression from others (e.g., tries to avoid a fight, walks away, seeks assistance, defends self).	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5
(3)	23. Responds to conventional behavior management techniques (e.g., praise, reprimands, timeout).	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5
(1)	24. Cooperates with peers in group activities or situations.	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5
(2)	25. Interacts with a number of different peers.	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5

Subscale	Item	Rating Format: Never ☐ ☐ ☐ ☐ ☐ Frequently
(1)	26. Uses physical contact with peers appropriately.	☐ ☐ ☐ ☐ ☐
(3)	27. Responds to requests promptly.	☐ ☐ ☐ ☐ ☐ 1 . . . 2 . . . 3 . . . 4 . . . 5
(1)	28. Listens while others are speaking (e.g., as in circle or sharing time).	☐ ☐ ☐ ☐ ☐ 1 . . . 2 . . . 3 . . . 4 . . . 5
(1)	29. Controls temper.	☐ ☐ ☐ ☐ ☐ 1 . . . 2 . . . 3 . . . 4 . . . 5
(2)	30. Compliments others regarding personal attributes (e.g., appearance, special skills, etc.).	☐ ☐ ☐ ☐ ☐ 1 . . . 2 . . . 3 . . . 4 . . . 5
(1)	31. Can accept not getting her/his own way.	☐ ☐ ☐ ☐ ☐ 1 . . . 2 . . . 3 . . . 4 . . . 5
(2)	32. Is socially perceptive (e.g., *reads* social situations accurately).	☐ ☐ ☐ ☐ ☐ 1 . . . 2 . . . 3 . . . 4 . . . 5
(3)	33. Attends to assigned tasks.	☐ ☐ ☐ ☐ ☐ 1 . . . 2 . . . 3 . . . 4 . . . 5
(2)	34. Plays games and activities at recess skillfully.	☐ ☐ ☐ ☐ ☐ 1 . . . 2 . . . 3 . . . 4 . . . 5
(2)	35. Keeps conversation with peers going.	☐ ☐ ☐ ☐ ☐ 1 . . . 2 . . . 3 . . . 4 . . . 5
(1)	36. Finds another way to play when requests to join others are refused.	☐ ☐ ☐ ☐ ☐ 1 . . . 2 . . . 3 . . . 4 . . . 5
(1)	37. Is considerate of the feelings of others.	☐ ☐ ☐ ☐ ☐ 1 . . . 2 . . . 3 . . . 4 . . . 5
(2)	38. Maintains eye contact when speaking or being spoken to.	☐ ☐ ☐ ☐ ☐ 1 . . . 2 . . . 3 . . . 4 . . . 5
(1)	39. Gains peers' attention in an appropriate manner.	☐ ☐ ☐ ☐ ☐ 1 . . . 2 . . . 3 . . . 4 . . . 5
(1)	40. Accepts suggestions and assistance from peers.	☐ ☐ ☐ ☐ ☐ 1 . . . 2 . . . 3 . . . 4 . . . 5
(2)	41. Invites peers to play or share activities.	☐ ☐ ☐ ☐ ☐ 1 . . . 2 . . . 3 . . . 4 . . . 5
(3)	42. Does seatwork assignments as directed.	☐ ☐ ☐ ☐ ☐ 1 . . . 2 . . . 3 . . . 4 . . . 5
(3)	43. Produces work of acceptable quality given her/his skills level.	☐ ☐ ☐ ☐ ☐ 1 . . . 2 . . . 3 . . . 4 . . . 5

IV. **Walker Mc-Connell Scores**

	Teacher-Preferred Social Behavior (Subscale 1)	Peer-Preferred Social Behavior (Subscale 2)	School Adjustment Behavior (Subscale 3)	Total Score
Raw Scores	_____	_____	_____	_____
Standard Scores	_____	_____	_____	_____
Percentile Ranks	_____	_____	_____	_____

V. **Narrative Comments**

APPENDIX B

APPENDIX B

Team Teacher Questionnaire

1. How and why did your involvement in _____'s team teaching project begin?

2. What are the advantages to you as a teacher (exclude student effects)?

3. What are the disadvantages to you as a teacher?

4. What are the positive effects for general education students?

5. What are the negative effects for general education students?

6. What are the positive effects for special education students?

7. What are the negative effects for special education students?

8. How do you and your teaming partner carry out planning for instruction, i.e., how often, how much time, who does what, etc?

9. How do you and your teaming partner carry out delivery of instruction, i.e., who teaches what, how do you decide who teaches what, how do you group students for instruction, etc?

10. How do you and your teaming partner deal with student discipline?

11. Please list your prior teaching experiences.

12. Please list professional development activities you have participated in over the last three years.

NOTE: Spacing was left for responses on actual questionnaire.

APPENDIX C

APPENDIX C

MICHIGAN STATE UNIVERSITY

OFFICE OF VICE PRESIDENT FOR RESEARCH
AND DEAN OF THE GRADUATE SCHOOL

EAST LANSING • MICHIGAN • 48824-1046

November 21, 1991

Cynthia Smith
15318 Cove Street
Grand Haven, MI 49417

RE: THE EFFECT OF TEACHING-TEAMS OF ELEMENTARY GENERAL AND SPECIAL EDUCATORS ON STUDENTS' ACADEMIC GAINS AND TEACHER RATING OF SPECIAL EDUCATION STUDENTS' INTERPERSONAL SOCIAL COMPETENCE AND SCHOOL ADJUSTMENT, IRB #91-500

Dear Ms. Smith:

The above project is exempt from full UCRIHS review. I have reviewed the proposed research protocol and find that the rights and welfare of human subjects appear to be protected. You have approval to conduct the research.

You are reminded that UCRIHS approval is valid for one calendar year. If you plan to continue this project beyond one year, please make provisions for obtaining appropriate UCRIHS approval one month prior to November 14, 1992.

Any changes in procedures involving human subjects must be reviewed by the UCRIHS prior to initiation of the change. UCRIHS must also be notified promptly of any problems (unexpected side effects, complaints, etc.) involving human subjects during the course of the work.

Thank you for bringing this project to our attention. If we can be of any future help, please do not hesitate to let us know.

Sincerely,

David E. Wright, Ph.D.
Chair, UCRIHS

DEW/deo

cc: Dr. Samuel Moore

LIST OF REFERENCES

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