Academic Achievement of Students with Disabilities

in Co-Teaching, Resource Room, and Support Facilitation Models

by

Frances (Rene) Shaw

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ACADEMIC ACHIEVEMENT OF STUDENTS WITH DISABILITIES IN CO-TEACHING, RESOURCE ROOM, AND SUPPORT FACILITATION MODELS

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Frances (Rene) Shaw

This dissertation was prepared under the direction of the candidate’s dissertation advisory, Dr. Vasil M. Kerensky, Department of Educational Leadership, and has been approved by the members of her supervisory committee. It was submitted to the faculty of The College of Education and was accepted in partial fulfillment of the requirements of the degree of Doctor of Education.

SUPERVISORY COMMITTEE:

[V signatures]

Chairperson, Dissertation Advisor

[Signature]

Chairperson, Department of Educational Leadership

[Signature]

Dean, College of Education

[Signature]

Division of Research and Graduate Studies

[Signature]

11/29/02

Date
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ABSTRACT

Author: Frances (Rene) Shaw
Title: Academic Achievement of Students with Disabilities in Co-Teaching, Resource Room, and Support Facilitation Models
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Since the passage of Public Law 94-142 (The Education of All Handicapped Children Act) which is currently called the Individuals with Disabilities Act (IDEA), there has been a movement to service students with disabilities in more inclusive environments. The Broward County School District had been involved in the State of Florida’s effort to reform the special education funding model and the delivery of services to students in more inclusive environments since 1994.

The purpose of this study was to determine the effects of three delivery models, resource room, co-teaching, and support facilitation, on the reading and math achievement of students with mild to moderate disabilities. The subjects of this study consisted of 231 students with mild to moderate disabilities enrolled in 29 schools and serviced in one of these three delivery models. Their achievement was measured during the 1998-1999 school year based upon the results of a nationally normed achievement test. An Analysis of Variance (ANOVA) as well as an Analysis of Covariance (ANCOVA) was performed using the spring of 1998 test scores as baseline data or covariates and the spring of 1999 scores as dependent or criterion
variables. The independent variable was the type of delivery model. The results did not reveal any statistically significant differences in the achievement of the students in any of the three models thus indicating that in this study, the type of model did not have a significant impact on the achievement of these students. Implications based upon limitations as well as recommendations for further study are presented.
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CHAPTER I

Introduction

Background of the Study

Since the passage of Public Law 94-142 (The Education of All Handicapped Children Act) which is currently called the Individuals with Disabilities Act (IDEA), there has been a movement to service students with disabilities in more inclusive environments. Although the Law does not refer specifically to the term inclusion, it does define the least restrictive environment when it states that:

To the maximum extent appropriate, children with disabilities, including those children in public and private institutions or other care facilities, are educated with children who are not disabled, and that special classes, separate schooling, or other removal of children with disabilities from the regular education environment occurs only when the nature or severity of the disability is such that education in regular classes with the use of supplementary aids and services cannot be achieved satisfactorily. (IDEA Amendments of 1997)

Villa and Thousand (1995) describe several rationales for creating inclusive schools. The first was derived from a survey of parents, teachers, administrators, students, university professors, and concerned citizens over a ten-year period regarding the goals of public education. One of these goals is creating a sense of belonging. Proponents of inclusion contend that removing a child from regular education sends the message that belonging is something which is not a right but which must be earned.

A second rationale relates to efficacy data. Studies cited by Villa and Thousand reveal little or no positive effects for students with special needs regardless of type or severity of disability when they are in placements outside of special education (Lipsky and Gartner, 1989). In addition, when compared with similar
students in noninclusive settings, those special needs students in regular classes fair better academically as well as socially (Baker, Wang, and Walberg, 1994). Furthermore, the inclusion of students with disabilities in regular classes has no detrimental effect on regular education classmates (Hollowood, Salisbury, Rainforth, and Palombaro, 1995).

From a legal perspective, these authors cite federal court cases which relate to inclusion. Roncker v. Walker in 1983 stated the preference for delivering desirable services within a regular education context if feasible. The Sacramento Unified School District v. Rachel Holland in 1994 addressed that the starting point for placement of students with disabilities should be in regular education.

Another strong rationale of those advocating inclusive education parallels the civil rights movement. These proponents cite the landmark Brown v. Board of Education decision in 1954 which states that separateness in education can cause "a feeling of inferiority" (p.493) which negatively impacts a child's propensity for learning.

To ascertain the impact of this inclusion movement on local schools, McLesky, Henry, and Axelrod (1999) examined data from the Reports to Congress on the implementation of the Individuals with Disabilities Act (IDEA). Their investigation included data from 1988-1989 through 1994-1995. They focused specifically on the data regarding students with learning disabilities. Their investigation revealed that over the six-year period, the Cumulative Placement Rate (CPR) for students with learning disabilities who are educated in general education classrooms grew by 151%. A decrease of over 31% was also seen in the Cumulative
Placement Rate (CPR) for this same category of students who are educated in separate school settings.

From a local perspective, in the early 1990’s, educators in the State of Florida expressed concern that the existing model for determining distribution of funding to individual school districts was, in fact, a barrier to delivering services to students with disabilities in the least restrictive environment. A new model was developed and piloted throughout the State in the 1994-1995 school year. This model reduced the previous fifteen cost factors which were based on type of disability to only five cost factors based on severity of student needs and intensity of support required. A key aspect of this model which remains in effect at this time is that a student would generate funding based upon an identified cost factor regardless of time spent in regular education or exceptional student education settings (Florida Department of Education, 1996).

Broward County, Florida had five schools involved in the pilot process of this new model. In the final evaluation of this pilot year, independent evaluators under the direction of the Florida Department of Education (1996) interviewed school staff and reviewed documents and records. Schools felt they were able to provide a broader range of instructional strategies which were better for the children. Overall, the schools reported students benefited academically as well as socially.

Statement of the Problem

The revised funding model in the State of Florida allowed students with disabilities to receive instruction in less restrictive settings while still generating the cost factor assigned to them. The placement options within a regular education
classroom now include co-teaching and support facilitation. Co-teaching involves the sharing of instruction between a regular education teacher and an exceptional education teacher within the context of the regular classroom. Support facilitation can involve some direct contact by an exceptional student education teacher with students in a regular classroom setting or it may involve only collaboration on the part of the teachers. The problem in this study was to determine if these new options produce academic gains in the areas of reading and math based on empirical evidence when compared to gains made by students receiving services in a more traditional resource room or pull-out setting.

Purpose of the Study

The purpose of this study was to determine the effects of three delivery models, resource room, co-teaching, and support facilitation, on the reading and math achievement of students with mild to moderate disabilities.

The following null hypotheses were tested at the .05 level of significance:

1. There is no significant difference in the reading achievement of students with mild to moderate disabilities when they receive instruction in a resource room, co-teaching, or support facilitation model.

2. There is no significant difference in the math achievement of students with mild to moderate disabilities when they receive instruction in a resource room, co-teaching, or support facilitation model.

Significance of the Study

Providing a variety of models of support and delivery of services for students with disabilities is important from a constitutional, legal, and ethical perspective.
However, the perspective of effectiveness in terms of student academic achievement is also crucial. As Baker, Wang, and Walberg (1994) state, “of the many issues related to inclusion or integration of children with disabilities into regular classrooms, none is more important than the effects on students’ learning and social relations with classmates” (p.33). MacMillan, Gresham, and Forness (1996) are three researchers who feel that educational treatments of special education students must be empirically validated. They claim that advocates for full inclusion tend to “examine the effects of factors (e.g., teacher attitudes, parent beliefs, and so forth that are treated as independent variables) on the willingness to implement inclusive programs (i.e., the dependent variable)” (p. 146). Thus, they assume that full inclusion is beneficial. Without this empirical data, this assumption is unfounded. The Broward County School District has been involved in the State’s effort to reform the special education funding model and the delivery of services to students since 1994. Extensive training has been provided to school staffs particularly with regard to the instructional delivery models. This study intended to provide empirical data with regard to the effectiveness of these delivery models for students with disabilities in terms of student achievement.

Assumptions

For the purposes of this study, the following assumptions were made:

1. It is assumed that placements of the students in the study were made by a committee including school personnel and parents and were based upon the needs and goals for each individual child as specified in their Individual Education Plans (IEPs).
2. It is assumed that appropriate, allowable testing modifications were used during the administration of the Stanford Achievement Test and that the results are accurate and valid. These allowable modifications may include fewer sections tested each day, more frequent breaks, assistance with reading the items on the math subtests, and writing in the test booklet rather than transferring to an answer sheet.

3. It is assumed that appropriate instructional methods and curriculum were utilized in each setting and that students were instructed at their instructional levels.

**Delimitations**

1. This study was limited to fifth grade students with mild to moderate disabilities enrolled in resource room, co-teaching, or support facilitation models.

2. This study was limited to a one-year period (1998-1999 school year).

3. For purposes of this study, the specific category of disability was not identified for any of these students.

**Limitations**

1. This study involved a quasi-experimental design allowing for intact groups. Due to lack of identification and control of all variables caused by use of intact groups, generalization of results will be limited.
2. The types of instructional methods used in individual schools and classrooms were not accounted for. Therefore, academic gains may be the result of instructional methodology rather than setting.

3. Not all schools offered all placement options. Therefore, placement in a given model may not have been based upon the needs of the student but rather on the availability of the model.

4. Class size during reading and math instruction in any of the given models was not ascertained, again due to the use of intact groups, and was, therefore, not a controlled variable.

Definition of Terms

The following is a definition of terms utilized in this study.

Inclusion is defined by Rogers (1993) as “the commitment to educate each child, to the maximum extent appropriate, in the school and classroom he or she would otherwise attend. It involves bringing the support services to the child (rather than moving the child to the services) and requires only that the child will benefit from being in the class (rather than having to keep up with the other students)” (Rogers, p. 1).

The term least restrictive environment appears in the federal law (IDEA) and refers to the placement of students with disabilities in an educational setting which least impedes their interactions with students without disabilities.

An Individual Education Plan (IEP) is a written plan developed by a team of professionals and the parents of a student with disabilities which describes the student’s present level of performance, areas of need, goals and objectives related to
those needs, and programs and services which will be given to the student to meet his/her needs.

Students with disabilities are those students who have physical, emotional, cognitive, or communicative problems which are severe enough to inhibit their learning and necessitate the provision of some degree of special services.

The following reflect definitions utilized in the Broward County School District as well as the State of Florida (Florida Department of Education, 1997a).

A resource room is one type of delivery of services model in which the child with disabilities receives part of his instruction outside of the regular education classroom with an exceptional student education teacher. The child receives instruction in the resource room only in the subject areas in which this is deemed necessary according to his Individual Education Plan (IEP).

A co-teaching model is one in which two teachers (one regular education teacher and one exceptional student education teacher) share equal responsibility for the planning and delivery of instruction as well as assessment of student progress. In this model, students with disabilities are placed in a regular education classroom. The exceptional student education teacher goes into the regular classroom and “co-teaches” with the regular education teacher for a specified part of the day. Both teachers are equally responsible for all students.

Support facilitation can take several forms depending upon the needs of individual students. Support facilitation can take the form of external support such as consultation between the exceptional education and regular education teachers with regard to modifications or adaptations a child with disabilities may require. The
exceptional education teacher can also provide external support facilitation by creating a study guide for a chapter in a textbook or providing an alternate means of assessment. Support facilitation can provide internal support such as when the exceptional education teacher works directly with a child or group of children within the regular education classroom to assist them in accomplishing a learning task. The frequency and intensity of support varies based upon the students’ needs and the level of assistance the regular education teacher requires in meeting those needs.

The Matrix of Services is a rating form used to determine the funding cost factor for each eligible exceptional education student based upon the decisions made by the Individual Education Plan committee. Five domains are used to group types of services and five levels are used to describe the nature and intensity of services within each domain. The domains include curriculum and learning environment, social/emotional behavior, independent functioning, health care, and communication. The five levels reflect the need for assistance in each domain with level one requiring no additional assistance and level five requiring the maximum level of assistance. The total points on the Matrix result in a cost factor of 251, 252, 253, 254 or 255 (Florida Department of Education, 1997b).

Organization of the Remainder of the Study

This study has been organized into five chapters with the first being the introduction, background, and general overview of the research. The second chapter consists of a comprehensive review of the literature including a historical perspective, theory, and actual research in the area of the study. The third chapter provides information about the subjects and general procedures for the method being used to
conduct the research. It includes a discussion of the data collection and analysis procedures. Chapter four provides a presentation and analysis of data collected. Chapter five includes a discussion of the research results, conclusion, recommendation for using these results, and suggestions for further research in the field of inclusive education.
CHAPTER II

Review of the Literature

Introduction

This chapter presents a review of the literature on inclusion as it relates to students with disabilities. This review will begin with a discussion of inclusion from a historical perspective as well as a summary of related court cases. It will then present research, both pro and con, related to inclusion.

Inclusion – A Historical Perspective

The movement toward inclusion may lead some to believe that consideration of least restrictive environment is a new concept. In reality, the mandate of Public Law 94-142, the Education for All Handicapped Children Act, in 1975 was the culmination of efforts begun over one hundred years prior to its enactment.

“For practically all of the history of civilization, education has been for the elite, and educational practices have reflected an elitist orientation” (Blankenship & Lilly, 1981). The history of the education of persons with disabilities has been from the beginning a quest for inclusion. “The issue of where students with disabilities should be educated has been inextricably intertwined with the issues of whether and how they should be educated” (Lipsky & Gartner, 1997, p.73). Students with disabilities were excluded from formal educational institutions until approximately 1800. Prior to this, they were cared for by their families, in some cases hidden away. When exposed to the community, they were often considered the village idiots (Kirk, 1972). Throughout the nineteenth and early twentieth centuries, a change of attitude occurred in response to ideas of democracy and freedom. The focus changed from
one of protection to a desire to teach skills that would allow these students to become functioning members of society. Still their educational opportunities were in institutional or other segregated settings. The latter part of the twentieth century has seen a movement toward education in the mainstream of regular education.

Historians trace the beginnings of special education to Jean-Marc-Gaspard Itard (1775-1838), a French physician and authority on the diseases of the ear and the education of students who were deaf. Itard was known for educating a young boy who had been found at age twelve roaming wild in the forests in France. He was able to improve the wild behavior of this child through patient, systematic educative procedures. Itard’s student, Edoard Seguin, also became a famous educator of so-called idiotic children and immigrated to the United States in 1848.

When students with disabilities finally gained an opportunity to be educated, this occurred only in segregated, special schools which were often residential. Benjamin Rush, a physician, introduced the concept of the education of the disabled in the late 1700’s in the United States. This was not put into effect until 1817 when Gallaudet established the first educational program at the American Asylum for the Deaf and Dumb in Connecticut. The New England Asylum for the Education of the Blind was established in 1829 in Watertown, Massachusetts by Samuel Howe who was a graduate of Harvard Medical School. Howe’s success at teaching a deaf student influenced the education of Helen Keller. The Experiential School for Teaching and Training Idiotic Children opened in 1846 in Barre, Massachusetts. What is currently Gallaudet University was opened in 1858 in Washington, D.C. as the Columbia Institution for the Instructions of the Deaf and Dumb and the Blind.
Public school education for students with disabilities began in Boston in 1869 with the establishment of a school for students with hearing impairments. In 1896, a separate class was established for students with mental retardation. A separate, but nonresidential school, was established by New York City in 1905 for truants, delinquents, and incorrigible students. Ten years later, a model in which students with visual impairments spent part of the day with sighted peers began in Cleveland.

Even the passage of compulsory attendance laws in the early 1900’s did nothing to further the cause of educating students with disabilities as many children with disabilities continued to be excluded from the public schools. Although special classes and special day schools gained some momentum in the early 1900’s, programs in residential facilities remained dominant. As Sigmon (1983, p.3) notes, “almost all children who were wheelchair-bound, not toilet trained, or considered ineducable were excluded because of the problems that schooling them would entail.” Furthermore, the movement for special classes for those children with disabilities who were allowed to attend schools grew stronger. Teachers in the general education field perceived those who worked within special education as having some special preparation or knowledge to enable them to work with these children. This attitude fostered a continuous segregation of special education programs within regular school settings.

By the 1950’s and 1960’s, the preferred delivery model became the special class within regular public schools for most students with disabilities with the exception of the blind, deaf, and physically disabled. This resulted in several studies which were published in the 1960’s regarding the benefits of special classes for
children with mental retardation. One of these studies by L.M. Dunn (1968) concluded that there was no evidence that the academic progress of students in special separate classes was superior to that of similar students in regular classrooms. Further, these studies pointed out that regular education teachers were capable of providing effective instruction to these students. Finally, due to the disproportionate number of African American students enrolled in special education, special classes tended to segregate these students from their Caucasian peers.

The civil rights movement of the 1950’s and 1960’s increased recognition and respect for the human dignity of all citizens regardless of individual differences. The decision in the 1954 case, Brown v. Board of Education, brought a closer look at the exclusionary practices for students with disabilities. “Inclusion emerged as a broad notion of social justice that was manifested as an expression of concern for safeguarding the rights of all students” (Winzer & Mazurek, 2000, p. ix). The National Cooperative Educational Research Program of 1957 gave priority to studying students labeled as Mentally Handicapped. It provided funds in 1958, 1961, and 1963 to prepare teachers for working with students with handicaps. Congress passed the Elementary and Secondary Education Act (ESEA) of 1965 which allocated federal funds for schools and established the Head Start Program. They added Title VI to this act the following year which established the Bureau for the Education of the Handicapped (BEH). The Bureau was responsible for administering programs related to the education of students with disabilities as well as programs for teacher training and research. In 1970, Title VI was superceded by the Education of the Handicapped Act (EHA) (PL 91-230) which provided support for equipment, school
construction, personnel preparation, and research and demonstration programs. Due to insufficient time for its initiatives to show results, the EHA was not extended. The Education Amendment of 1974 instituted due process procedures to protect the rights of exceptional children. It provided safeguards for use in evaluation and placement and mandated integration into regular classes whenever feasible.

Parents became organized and assumed an advocacy role for their children’s rights. A group of special education leaders including Blatt, Dunn, Dybwad, Goldberg, Hobbs, Lilly, Reynolds, and Wolfensberger began advocating for more normalized school environments for disabled students. Segregated settings were being viewed for the first time as inappropriate (Villa & Thousand, 1995).

Education in the least restrictive environment became a focus of the 1970’s. Two different court cases, *Pennsylvania Association of Retarded Citizens (PARC) v. Pennsylvania* (1972) and *Mills v. Board of Education* (1972) established the right of children with disabilities to a free and appropriate education in the public school system. Further, *Mills* found that exclusion was a violation of the due process and equal protection clauses of the Fourteenth Amendment to the Constitution. In 1973, Congress passed the Rehabilitation Act, Section 504, which guaranteed the rights of persons with handicaps in employment and in educational institutions that receive federal monies. With regard to academic settings, this Act guaranteed reasonable accommodations and equal access to educational opportunities for persons with disabilities (Villa & Thousand, 1995).

In 1975, Public Law 94-142 (Education for All Handicapped Children Act) was passed and enacted in 1978. This law specified that all children with disabilities
be provided a free and appropriate public education in the least restrictive
environment. It also required that whenever a person was placed in a setting other
than the regular education environment, the proximity of the alternate setting to the
person’s home should be taken into account. As a result of the implementation of this
law, as well as its reauthorization as the Individuals With Disabilities Education Act
(IDEA) in 1990 and 1999, educational services to students with disabilities have been
offered along a continuum of placements and models. By 1976, all states had passed
laws subsidizing public school programs for students with disabilities (Villa &
Thousand, 1995).

The Association for Persons with Severe Handicaps in 1979 adopted a
resolution calling for placement of students with severe disabilities in regular
neighborhood schools. A few years later, the National Society for Children and
Adults with Autism adopted a similar resolution.

Susan and William Stainback (1984) challenged the dual systems of special
and regular education by proposing the merger of special and regular education into
one system of education designed to meet all students’ needs. Their rationale for this
merger is based upon three premises. The first is that the instructional needs of
students with disabilities do not warrant two separate systems. They believe that
since all students differ from one another to varying degrees, there is no distinct
group of students who require specialized, individualized programs. In fact, all
students require programs tailored to meet their needs. Further, they contend that
there are not discrete instructional methods that are for use only with students with
disabilities. Instead, there are a myriad of instructional strategies which may be successful with students with and without disabilities.

Their second contention is that a dual system is inefficient. They view the need to classify students in a dual system as unnecessary and expensive. Classification does not serve an instructional purpose as it does not reflect the specific educational needs and interests of the students. Each child looked at as a whole is better served. The inefficiency continues as a result of the competition fostered by a dual system which interferes with cooperative efforts between regular and special educators. This division also reduces opportunities to pool resources and knowledge to best meet the needs of all children. Curricular options in a dual system are limited in that regular education students are not able to access some special education services which may be appropriate and special education students may not have access to all regular education options. Finally, the dual system is ineffective because it fails to prepare the students for a world in which there is no distinction between special and regular.

Stainback and Stainback state as their final premise that a dual system fosters an inappropriate mindset about providing services to students with disabilities. The focus is on their limitations rather than their capabilities.

In the 1970’s and early 1980’s, students with mild or moderate handicaps began to be integrated into regular classes at least on a part time basis. Students with more severe handicaps who had not been serviced in the past began to receive services in regular schools. In 1988, the Association for Persons with Severe
Handicaps began advocating the education of students with severe and profound disabilities in regular education and the integration of special and general education.

Madeline Will (1986), former Assistant Secretary for Special Education and Rehabilitation Services for the Department of Education, drafted what has become to be known as the Regular Education Initiative (R.E.I.). In addressing the learning opportunities for special education students with mild and moderate disabilities, she criticized what she viewed as a very fragmented system. She advocated a collaborative and cooperative team effort in regular education classrooms (Levandowski, Cassidy, & Olsen, 1992). Her goal was to bring the program to the child rather than the child to the program (O’Neill, 1988).

A report of the National Association of State Boards of Education Study Group on Special Education entitled Winners All: A Call for Inclusive Schools was developed in October 1992. This report called for the creation of an inclusive education system that aimed to produce better outcomes for all students. It recommended an inclusive system of “including” rather than merely “mainstreaming” students with disabilities.

In 1994, Valerie Bradley, then vice-chairperson of the President’s Committee on Mental Retardation, summarized the changes which have occurred in the United States in the services offered to children with disabilities. The first era was that of institutionalization in which children with disabilities were separated. A change began to take place in the 1960’s and continued its metamorphosis in the early 1970’s to more of a developmental or rehabilitation model. This era focused on deinstitutionalization and community development. The third stage in which
education functions at the present is the stage of community membership. This era focuses more on supports which enhance inclusion and quality of life and education.

Legislation known as "Goals 2000: Educating America Act" (PL 103-227) was enacted in 1994 under the Clinton Administration (Hallahan & Kaufman, 2000). This represented a national vision for educational reform. The original version encouraged states to adopt opportunity-to-learn standards intended to insure that disadvantaged students would be provided with curricular resources to meet the new content and performance standards. These opportunity-to-learn standards were not included when the legislation was reauthorized in 1996. Included were statements that "all children can learn and achieve to high standards" (PL 103-227, sec 301(1)) and that "all students are entitled to participate in a broad and challenging curriculum and to have access to resources sufficient to address other education needs" (PL 103-227, sec 301 (15)). These statements are inclusive of students with disabilities.

Hallahan and Kauffman (2000) describe the following continuum of delivery options available for students with disabilities. The least restrictive or, as they define it, the most physically integrated is that of regular class placement. This is appropriate for students with mild disabilities whose needs can be meet totally by a regular classroom teacher. The next level is one in which the students are placed totally in regular education but some consultation is offered to the teacher by a special educator regarding appropriate adjustments to instruction. The next type of placement is called itinerant services in which the regular teacher provides most or all of the instruction. The special educator provides consultation as well as intermittent instruction. In the next option, the resource room, the regular teacher continues to
provide most of the instruction and the special educator provides instruction for part of the day. In the diagnostic-prescriptive center, the special educator in a center provides most or all of the instruction for a period of time and develops a plan to be implemented by the regular or special educator. Hospital or homebound instruction is provided to students who are undergoing medical treatment or tests and are temporarily withdrawn from regular school enrollment. In a self-contained class placement, students are mostly or entirely instructed by a special educator. Those enrolled in special day schools are totally separated from regular education and have all of their instruction provided by a special educator. Finally, the most restrictive or least physically integrated setting is the residential school. Students in a residential school are also separated totally from the regular school and are placed in a more therapeutic environment.

Walther-Thomas, Korinek, McLaughlin and Williams (2000) cite reasons for lingering resistance which remains regarding inclusive education. Historically, general education viewed special education as a means for removing students who were perceived as difficult to teach. General education classrooms were traditional places where these students did not experience success. Returning them to this environment, assuming it has remained unchanged, does not produce optimism about positive outcomes. Opponents also fear that students requiring specialized or individualized instruction may not receive this in inclusive settings. Further, these complex needs of some special education students may interfere with the learning of general education students if proper supports are not in place. General education classrooms today are faced with the demands to meet higher standards while still
coping with problems such as greater diversity in language and culture, violence, drugs, and poverty. Without proper support for general education teachers, inclusion may serve to produce more stress.

The history of educating students with disabilities has moved from a focus on “establishing entitlement and access to providing quality outcomes” (Lipsky & Gartner, 1997, p. 80). For the future, these authors contend, “an equally great challenge has yet to be met to achieve equitable and quality educational outcomes” (p.80).

Inclusion: Significant Court Cases

The Courts have had numerous opportunities in recent years to interpret the full intent of the laws regarding the education of students with disabilities. A review of these cases provides a clear description of the factors which should be considered when making placement decisions for these students along the continuum of service delivery models.

The Supreme Court in its 1982 decision in Board of Education v. Rowley created the so-called deference standard. It deferred to state and local agencies the task of determining what is appropriate and suitable for students’ needs. Further, it ruled that the “free appropriate public education” guarantee of the Education for All Handicapped Children Act (now called Individuals with Disabilities Education Act) did not require states to maximize the potential of each handicapped student to the same level that is provided non-handicapped students. Students need only be provided a “basic floor of opportunity.” No particular outcome need be guaranteed.
The Sixth Circuit Court in *Roncker v. Walter* (1983) established another measure called the portability standard. Two questions were posed. The first is whether the services provided in a segregated facility could also be provided in the mainstream setting. If not, the second question is whether the benefits of mainstreaming or inclusion outweigh the benefits that could be gained from services not feasibly provided in the mainstream. In this case, the federal court refused to intervene in a proposal to move a nine-year-old trainable mentally handicapped student from a separate class in a public school to a totally segregated setting.

The Fifth Circuit Court in *Daniel R.R.* (1989) rejected the *Roncker* standard preferring to look at the least restrictive environment rather than where services can be delivered. This decision raised two questions. The first deals with whether education in the regular classroom with supplementary aids and services can be achieved satisfactorily. In answering this question, the Court investigates the steps that have been taken to accommodate the child, whether the child can receive some educational benefit, even nonacademic, from regular education, and the effect that the child's presence will have on the classroom environment and education of others. Placement in regular education is not considered appropriate if the child has such limited cognitive ability that he would not be able to grasp the basics of regular education curriculum or if the curriculum must be modified to the extent that it isolates the child within the regular classroom. It is also not considered appropriate if the amount of time required to work with a particular child would detract from the time offered to the rest of the students. The sole benefit to the child cannot be the mere proximity to non-handicapped peers. If education in the regular classroom
cannot be achieved satisfactorily with the provision of aids and services, then the Court must consider whether the school has mainstreamed the child to the maximum extent possible. This standard became applicable in the Third Circuit as a result of *Oberti v. Board of Education of Clementon School District* (1993) and in the Eleventh Circuit as a result of *Greer v. Rome City School District* (1991). In *Oberti*, the court found in favor of the parents as they observed that the school did not give sufficient consideration to accommodations in a regular classroom before recommending placement in a self-contained setting. The court also found in favor of the parents in *Greer v. Rome*. It determined that the school district had not considered all options before placing this child with Down’s Syndrome in a self-contained special education setting.

The Ninth Circuit Court in 1994 developed a four-part least restrictive environment test in its decision in *Board of Education of Sacramento City Unified School District v. Rachel Holland*. The four areas of consideration are: the educational as well as non-academic benefits available; the effect of the child on the teacher and other children in the classroom; and the cost of educating the child in the mainstream. It applied this standard to uphold a more restrictive placement of an extremely disruptive fifteen-year-old boy with Tourette’s Syndrome in *Clyde K. v Puyallup School District No. 3* (1994). In *Poolaw v Bishop* (1995), the Court used poor performance in a mainstream setting in a previous school system to rule for a more restrictive setting for a profoundly deaf boy.

Individual school districts must comply with the Supreme Court’s decision in *Rowley*. However, the other cases have not made it to the Supreme Court.
Therefore, their decisions are effective only in school districts that are located within the judicial area of the ruling circuit court.

Inclusion: Pros and Cons

This section will report on some of the major research, which has been conducted regarding the effectiveness of inclusion. Several authors have commented on the paucity of research on the learning outcomes of inclusion programs (Hunt and Goetz, 1997; Lessen, Dudzinski, Karsh and VanAcker, 1989; and Lipsky and Gartner, 1997). Hunt and Goetz surmise that this lack is due to the fact that the inclusion movement is based upon a foundation of human rights, legal precedents, and ethical considerations rather than on theories of learning or research on efficacy of teaching. As Stainback and Stainback (1992) wrote: “We simply believe inclusion is a better way to live...whether we include everyone is not a question for science or research. Inclusion is a value judgment” (p.15). In other words, proponents of full inclusion do not see the need to empirically prove the effects of such placement. The following summary is not meant to be exhaustive nor will it delineate the effectiveness of inclusive environments with regard to specific types of exceptionalities. It will report primarily on studies of an academic nature and will present both pros and cons.

Several studies performed revealed comparable achievement between students in an inclusion model and students serviced in a separate setting by a specialist. In Canada, a program entitled the Intervention Program for Students at Educational Risk (PIER) was tested (Saint-Laurent, et al, 1998). This program was integrated into regular education classroom settings and included four components. These components included consultation, cooperative teaching, parent involvement, and
strategic and adapted instruction in reading, writing, and math. The achievement of special education students was compared to that of a control group of similar students who received resource room services. Pretest and posttest scores on an academic test provided by the Department of Education in the areas of reading, math, and writing were utilized. Two multivariate analyses of covariance (MANCOVA) as well as an analysis of variance (ANOVA) were performed. The results of this treatment program were positive in at least one academic area for regular education and non-special education at-risk students. However, no specific treatment effects were found for special education students.

Affleck, Madge, Adams and Lowenbraun (1988) compared the achievement of students enrolled in an Integrated Classroom Model (ICM) to that of students enrolled in a resource room model. The ICM provided services to mildly handicapped students within a regular education classroom taught by a regular education teacher. A teacher aide assisted in the classroom for part of the day. Students taught in the resource room model were pulled out of the regular classrooms for 30 to 150 minutes daily. Utilizing the academic subtests of the Woodcock-Johnson Psycho-Educational Battery as pretest and posttest measures, the achievement of these students was studied over a three-year period. Applying an analysis of covariance (ANCOVA), no significant differences between groups were found during all three years in reading and language. A significant difference in math was found in year one with the math achievement being significantly higher for the integrated students.
In addition, the achievement of the regular education students was studied utilizing the California Achievement Test. No significant differences were found between those regular education students in the ICM and a control group of regular education students in regular education classrooms without the inclusion of students with disabilities.

Jenkins, Jewell, Leiceister, Jenkins, and Troutner (1991) examined the effects of in-class services for students with disabilities as well as remedial students in the context of a four-year project to design and field test a school building model for accommodating low-achieving students in general education classrooms. In the experimental school, specialists and aides provided instruction to students with disabilities and to remedial students within the regular classroom.

Fall and spring scores on the Passage Reading Test and the Basic Academic Skills Samples (BASS) tests in reading, math, spelling and written expression were analyzed. The multivariate analysis of variance (MANOVA) on these scores revealed a significant effect favoring the control group on the math facts test. This was thought to be the result of the provision of specialized math instruction in the control school which was not provided in the experimental school. Thus, it was not viewed as an effect of the provision of pull-out services alone. No significant differences were obtained on the MANOVA or univariate tests utilizing the Woodcock-Johnson tests in reading, math or language.

Another model to accommodate students with learning disabilities in the mainstream was developed by Zigmond and Baker (1990). This model was called Mainstream Experiences for the Learning Disabled (MELD). Within this model,
after a year of planning involving all the teachers as well as the principal of a school, all students with learning disabilities were reintegrated into regular classrooms. The special education teacher's role changed from that of a pullout teacher to a co-teacher or support teacher within the mainstream. Changes in grouping patterns and instructional methods were expected as well as on-going monitoring through curriculum-based assessment.

The subjects of this study consisted of thirteen students with learning disabilities who spent year one of the program in self-contained learning disability classrooms and year two integrated totally in regular classes. Achievement was measured by the California Achievement Test (CAT), oral reading samples, and grades. The mean differences between baseline and posttest scores were not significant in either reading or math. However, grades for students were significantly lower in the Mainstream Experiences for the Learning Disabled (MELD) model than they had been when students were in self-contained classes.

The state of Vermont passed legislation entitled Act 230 (1993) which was intended to develop an alternate system to better accommodate students with diverse learning needs. It was found that many schools were not addressing the needs of learners unless they were made eligible for special education thus necessitating that even mildly learning impaired students were labeled as handicapped in order to receive services. The state recognized that it was operating under the burden of increased enrollments in special education, rising costs, and a bureaucracy of a highly regulated special education system. The state's method of funding resulted in many cases in students with mild learning problems being educated in regional special
classes as there was no mechanism to fund local options for these students. In addition, a large number of students with moderate to severe disabilities were being serviced in residential placements again due to no funding to support local programs.

A new funding system was created in Vermont in 1988 which was placement neutral in that funding was based upon the needed services rather than the location in which those services were delivered. However, the system still tied the generation of funds to identifying students as eligible for special education. Act 230 changed this as it distributed block grant money based on the total student enrollment rather than special education count and allowed funds to be spent on remedial and compensatory education. In its impact report, two questions are addressed. The first has to do with the success of students dismissed from special education services and the second reflects the impact on students needing support services.

The grades of students dismissed from special education services were studied. Prior to their dismissal, 84% of their grades were C or better. During the first year of their dismissal, 80% of their grades were C or better. This represented a statistically insignificant decline. Further, interviews with teachers, special educators, parents, and students revealed that dismissed students had comparable performance without special education services as when they were receiving services in the areas of behavior, social interactions, classroom performance and overall success. Interviews conducted with school staff also indicated that most students requiring services did receive adequate support.

Several studies revealed students with disabilities making significantly better progress in some form of inclusive setting when compared to peers who were
serviced in a special education setting. Schulte, Osborne, and McKinney (1990) studied the achievement of children with learning disabilities assigned to four delivery models: one period of resource room per day; two periods of resource room; consultative services combined with in-class instructions; and consultative services only to classroom teachers. The pretest and posttest measures were the academic subtests of the Woodcock–Johnson Tests of Achievement. In addition, scores from a criterion-referenced reading test developed by the school district were used.

Applying an analysis of covariance (ANCOVA) using the reading subtest score as a covariate, the differences between the treatment groups at post testing on the criterion-referenced reading test were measured. The results revealed no significant differences among the treatment groups. Analyzing pretest and posttest Woodcock-Johnson scores, students with consultative and direct services made significantly greater progress than students with consultation only and resource room services.

An innovative teaching model was described by Self, Benning, Marston, and Magnusson (1991). Entitled the Cooperative Teaching Project, this program provided supplemental reading instruction to students identified as high risk. This additional instruction was delivered within the regular classrooms during the reading period. Reading progress was monitored weekly by having students read grade level passages for one minute while teachers counted the number of words read correctly. Learning rates of students placed in the Cooperative Teaching Project were compared to their rates prior to receiving services. These rates were aggregated for each phase of the study over a three year period and analyzed using a paired t-test. Results indicated a
significant improvement. The impact of cooperative teaching on the achievement of students in general was also measured using the same assessment method. The average performance of students in grades one, two, and three increased significantly from fall to winter and from winter to spring.

A replication and expansion of the work of Zigmond was conducted by Waldron and McLesky (1998). This study investigated the effects of an Inclusive School Program (ISP) on the academic achievement of students with mild and severe learning disabilities. Students in the Inclusive School Program (ISP) were placed in regular classrooms and received services within this setting from special education teachers. The students in the comparison group received services in the traditional resource room programs. The academic progress of both groups was assessed by a curriculum-based measure, the Basic Academic Skills Samples (BASS). Pretest and posttest scores in reading and math were treated using an analysis of covariance (ANCOVA). The results indicated that the students in the Inclusive School Program (ISP) setting made significantly greater progress in reading than those in a resource room setting. The groups did not differ in their progress in the area of math.

Marston (1996) compared the reading achievement of students with mild disabilities who were instructed in inclusion only, pull-out only, and combined services models. He defined inclusion only as a full inclusion model in which the students with disabilities received all of their instruction in the general education classroom with the general education teacher and the special education teacher collaborating to provide instruction. In the pull-out only model, the students with disabilities received all of their instruction in reading in the resource room with no
collaboration between the special education teacher and the regular education teacher. The combined services approach involved collaboration on the part of both teachers to provide the students with instruction in the general education classroom as well as supplemental instruction in the resource room. An analysis of covariance (ANCOVA) was applied to scores from a curriculum-based measure in the area of reading. The results revealed that the reading gains of students with disabilities serviced in the combined services setting were significantly greater than those in the other two models.

A meta-analysis conducted by Carlberg and Kavale (1980) addressed the efficacy of special class versus regular class placement. Fifty individual studies were selected. For each study, an Effect Size (ES) was computed for each comparison. This allows the results from the various studies to be converted to a common unit of measurement, the standard deviation unit. When comparing the data according to outcome measures, the results reveal that regular class placement produced slightly better results than special class placement in terms of academic achievement as well as social/personality development when all types of students were considered. However, special class placement produced better results for students with learning disabilities and behavioral/emotional disorders. The Effect Sizes of another meta-analyses (Wang and Baker, 1985-1986) also demonstrated a small-to-moderate beneficial effect of inclusion in a regular class on the academic and social/personality outcomes of children with special needs.

Zigmond, et al. (1995) collected data on three projects conducted at the University of Pittsburgh, the University of Washington, and Vanderbilt University.
Each of these projects involved returning students from special education settings to general education settings. Reading achievement was measured using the Basic Academic Skills Samples (BASS). The first focus was on reading gains surpassing one standard error of measurement. Over 50% of the students achieved gains in reading surpassing one standard error of measurement. Conversely, the authors noted, half of the students did not register enough of a gain in reading to measure the standard error of measurement associated with the test.

In an additional analysis, the achievement gains of the students with learning disabilities were compared to the gains of their grade level peers. In this analysis, only approximately 37% of the students with learning disabilities made average or better gains when compared to their peers in regular education. In addition, about 40% of the students with learning disabilities made gains which were less than half the size of the grade-level averages. Thus, for this group of students, the gap between their achievement and that of their grade level peers became wider.

Murawski and Swanson (2001) utilized a meta-analytic procedure to provide a synthesis of quantitative data on the effectiveness of co-teaching. They conducted a comprehensive literature search and analyzed the articles based on three criteria. The first criterion was that the study included significant quantitative data to enable the researcher to calculate effect sizes for the intervention. Secondly, they identified four characteristics that would define the model under investigation as a co-teaching model. These characteristics stipulated that the general and special educators were teaching together, in the same physical space, that they planned together and that services were being delivered to a heterogeneous group of students, with and without
disabilities. The third criterion was that the co-teaching intervention must have lasted for longer than two weeks. Using all of these stipulations, 89 identified articles were reduced to only six that were included in the final meta-analysis. The overall mean effect size of 0.40 suggested that based upon these six studies, co-teaching produces moderately effective achievement outcomes.

One study conducted in the Netherlands did conclude that over a long period of time, students included in regular education make more progress than their peers who received instruction in a special education setting. This study conducted over a four year period by Peetsma, Vergeer, Roeleveld & Karsten (2001) compared the cognitive and psycho-social development of matched pairs of primary-aged students experiencing mild learning problems in regular education and special education over periods of two and four years. Standardized achievement test results in language and mathematics were analyzed. The findings were corrected for regression to the mean and T-tests were used to determine the significance of differences in means. Over the first two years of the study, some students did better while in regular education whereas others did better in special education. However, over the four-year period, the academic achievement of students in regular education was significantly better than that of those in special education.

Rea, McLaughlin & Walther-Thomas (2002) investigated the performance of middle school students with learning disabilities who were taught in inclusive classrooms to similar students taught in pull-out special education settings. Students in inclusive settings were taught by a team of general and special education teachers in a co-teaching model that also incorporated collaborative planning. Students in the
pull-out setting received special education services during an elective period. Special education teachers worked with students to either remediate academic weaknesses or to assist with the completion of assignments for general education classes.

Behavior, school attendance, and academic achievement were measured. Achievement was measured utilizing grades and performance on the Iowa Test of Basic Skills (ITBS) and the state proficiency test, The Literacy Passport Tests. Results indicated that students served in inclusive classrooms earned significantly higher grades than those in pull-out programs. Scores on the state proficiency test did not reveal any significant differences when either a two-tail t-test or a chi-square analysis of pass-fail rates was performed. Statistical analysis of the scores on the Iowa Test of Basic Skills (ITBS) revealed that students receiving services in an inclusive model achieved statistically significant higher scores in the language and math subtests than students receiving pullout services. However, no significant differences were found on the scores in the areas of reading comprehension, science and social studies.

A study conducted by Banerji and Dailey (1995) investigated the effects of an inclusion program on students with disabilities and compared their progress to that of a group of normally achieving (non-special education) students. This fifth-grade inclusion class consisted of a total of 30 students, 13 of whom had learning problems. Academic performance in the areas of reading and writing were measured at the end of three months in the program and at the end of the school year. Using a running record procedure, word accuracy rates as well as difficulty levels of the material read were kept as performance data on each student. Writing samples were assessed using
a standardized scoring guide. An analysis using chi-square tests determined that there was no significant difference between the two groups in growth in reading. Correlated means t-tests revealed some differences in the performance of the students with disabilities as compared to the normally-achieving students in writing. The normally-achieving students showed significantly more growth in mean length of writing samples and correctly spelled words.

The reading progress of students with disabilities was compared to that of general education students in the same reading groups in a study by Shinn, Powell-Smith, Good, and Baker (1997). The subjects were 23 students with mild disabilities who had been served in special education pull-out programs. Based upon a nomination process, special education teachers chose these students to participate in this trial reintegration into regular education classes for reading instruction. Curriculum-based measures were utilized to measure progress. These included an oral reading test from an instructional level basal text as well as a multiple choice cloze text from the instructional level basal. A series of separate Analyses of Variance (ANOVAs) was conducted for each phase of the reintegration process. Results showed that on the average, the re-integrated students with disabilities made academic gains comparable to the general education peers in the same reading groups.

The increase in students with disabilities included in regular classrooms for reading instruction has triggered research on the effectiveness of different grouping practices during reading instruction. Elbaum, Vaughn, Hughes, and Moody (1999) conducted a meta-analytic review of studies with the purpose of investigating the
relationship between reading outcomes for students with disabilities and the grouping format used during their instruction. The grouping formats included pairing, small groups, and multiple grouping formats. Pairing was defined as having students work in a pair and take on the role of tutor, tutee, reciprocal tutor-tutee, or cooperative partner. Small groups consisted of three to ten students. Multiple grouping formats incorporated a combination of the previous two formats implemented systematically. The results of this meta-analysis supported the effectiveness of alternate grouping formats as a practice for improving reading outcomes for students with disabilities. The authors view this conclusion as an impetus for further research on the extent to which the use of these formats can enhance academic outcomes and provide more insight on their effects in promoting successful inclusion efforts.

In a subsequent study, Moody, Vaughn, Hughes, and Fischer (2000) examined reading instruction for students with learning disabilities in resource room settings. Students were administered the Passage Comprehension subtest of the Woodcock-Johnson Tests of Achievement-Revised at the beginning and end of the school year. Using paired samples t-tests, no significant gains were made by these students in reading comprehension. Based upon classroom observations and interviews, the authors blame the lack of progress of the students on the large class size in these resource room settings. They maintain that the key issue to success lies not in the type of delivery model offered but in the quality of instruction being delivered. They maintain that such quality instruction is not possible with the overloaded caseloads that they observed.
Walther-Thomas (1997) reports on a three-year study of elementary and middle schools that utilized co-teaching as an integral part of their delivery model. Classroom observations, interviews, review of school documents, and informal contacts were used to gather data. The four major benefits identified for students with disabilities included enhanced self-confidence and self-esteem, improved academic performance, better social skills, and stronger peer relationships. Academic performance was referred to in terms of success at learning skills as well as maintaining passing grades.

An additional question that has arisen throughout the inclusion movement is that of the impact of inclusion of a student with disabilities on the achievement of non-disabled students in the class. One study on the effects of placement in an inclusive classroom on the academic performance of students without disabilities was performed by Sharpe, York, & Knight (1994). They conducted a pretest-posttest study. Academic performance was measured by the Science Research Associates (SRA) Assessment Survey, an achievement test in reading, language arts and math, and reading levels as defined by the reading series. Using a one-way analysis of variance (ANOVA), results indicated no statistically significant differences in academic performance of students who were members of classes that included a child with disabilities.

**Summary**

This chapter presented a historical background of education in our country as it relates to students with disabilities. Laws and court cases providing students with disabilities with the Least Restrictive Environment for instruction were also reviewed.
The efficacy of varying service delivery models was discussed. Rationales from proponents of providing services in regular education as well as special education classes were presented. Relevant research studies were also reviewed.

The results of the research presented indicate that the achievement of students with disabilities who are educated in an inclusive environment is at least comparable to or better than that of similar students educated in a special education setting. In addition, the academic performance of regular education students taught in inclusive classes is not impacted by the presence of students with disabilities.
CHAPTER III

Methods and Procedures

Research Design

The design for this study was a nonequivalent control group quasi-experimental design. The quasi-experimental design allows for use of intact groups in the study but may not allow for the identification and control of all existing variables. The researcher gained the data from a search of the record archives. Confidentiality procedures were implemented and utilized throughout the data collection process.

In the spring of the school year of this study, fourth and fifth grade students in this district were administered the Stanford Achievement Test, Eighth Edition (SAT) in the areas of Reading Vocabulary, Reading Comprehension, Math Computation, Math Concepts, and Math Application. The two reading subtests also yielded a Total Reading score and the three math subtests yielded a Total Math score. Students with disabilities also took the test unless their Individual Education Plans (IEP’s) indicated otherwise. Students with disabilities who participated in the district’s standardized testing program were allowed a variety of modifications as indicated on their Individual Education Plans (IEP’s). These may have included fewer sections tested per day, more frequent breaks, assistance with reading the items on the math subtests, and writing in the test booklet rather than transferring to an answer sheet. Since the Stanford Achievement Test is a nationally normed test that provides scores in the areas of math and reading and allowable modifications were implemented in this
district, it was decided that this instrument would be suitable for assessing the reading and math achievement of the targeted students.

The baseline data or covariates were the spring 1998 Stanford Achievement Test Total Reading scores and the Stanford Achievement Test Total Math scores. The scores on these same measures from the spring of 1999 were used as the dependent or criterion variables. The independent or predictor variables were the types of service delivery models in which the students were instructed during the 1998-1999 school year. Since the resource room model was the most restrictive in terms of placement among the approaches used in this study, students in this model were used as the control group. The experimental groups then consisted of the special education students enrolled in the co-teaching and support facilitation delivery models. The experimental treatment was the delivery model that was in place during the year of the study. This was a quasi-experimental design because random assignment to the groups could not be applied. Thus, the equivalence of the groups was not assured. Since these groups were already in existence at the various schools during the 1998-1999 school year, it was impossible to do random assignment. For this same reason, type of disability was not controlled. However, the severity level was controlled in that only students in the Matrix of Service cost factors of 251 and 252 (mild to moderately disabled) were used as part of the sample for this study. The variable of grade level was controlled as the study focused only on students enrolled in the fifth grade during this year.

To test hypothesis one, the Total Reading national percentile scores on the Stanford Achievement Test from the spring of 1998 and from the spring of 1999 were
collected. The percentile scores were translated into the normal curve equivalents (NCE’s). The amount of growth made by individual students was quantified by subtracting the spring 1998 normal curve equivalent scores from the spring 1999 normal curve equivalent scores. The mean for students in each type of delivery model was obtained.

To test hypothesis two, the Total Math national percentile scores on the Stanford Achievement Test from the spring of 1998 and from the spring of 1999 were collected. The percentile scores were translated into the normal curve equivalents (NCE’s). The amount of growth made by individual students was quantified by subtracting the spring 1998 normal curve equivalent scores from the spring 1999 normal curve equivalent scores. The mean for students in each type of delivery model was obtained.

Instrumentation

During the time period under investigation, the Stanford Achievement Test Eighth Edition (SAT) was administered to elementary students in this district in the spring of grades two through five. Subtests administered in the area of reading included Reading Vocabulary and Reading Comprehension. A Total Reading score was also reported. In the area of math, subtests included Math Concepts, Math Computation, and Math Application. A Total Math score was also reported. The scores were reported in national percentiles. For the purpose of this study, scores were converted to normal curve equivalents using a conversion chart provided by the school district’s research and testing department.
According to Brown (1992), the Stanford Achievement Test, Eighth Edition is a “professionally crafted” (p. 861) instrument that is norm-referenced and based upon a national consensus curriculum. Kuder-Richardson 20 reliability coefficients are reported for each test and subtest for each form and level. Most are at least .85 and many over .90. The lowest coefficients are for the Listening test which are still .80 or higher. Thus the reading and math tests and subtest utilized for this study have a reliability of .85 or higher. Brown’s one criticism of this test is the lack of evidence to support its validity.

Sampling

Schools to participate in this study were selected from the 127 elementary schools in existence during the 1998-1999 school year in Broward County, Florida. Broward County is a large, metropolitan school district that is divided for administrative purposes into four areas that are relatively equal in their representation of the total school population. Data were requested from the 35 elementary schools located in the North Area of the district. The target population for this study was students enrolled in fifth grade during the 1998-1999 school year and who had Individual Education Plans (IEP’s) that identified them as students with disabilities. These students had to take the Stanford Achievement Test (SAT) during the 1997-1998 school year as well as during the 1998-1999 school year. Based upon a delivery model survey conducted by the District Director of Exceptional Student Education, ten of these schools reported having a co-teaching model (n=40) during the 1998-1999 school year. Twenty-two reported having a support facilitation model (n=80) and twenty reported having a resource room model (n=60). Over 90% of these
students in these models are rated 251 or 252 according to the Matrix of Services. To minimize the intensity of needs for services as a factor, only students with mild to moderate needs (matrix ratings of 251 and 252) were included in this sampling. Sampling was based upon the coding of a district-generated printout of the above-mentioned students. A contact person at each school was asked to code each student on a printout according to the type of delivery model in which the student was enrolled during the 1998-1999 school year.

Data collection

This school district maintains a database of all students including their scores on district-wide achievement testing. After obtaining approval to conduct this research within this district, the desired test scores were downloaded into a database and sorted according to school. This data included the 1998 and 1999 Stanford Achievement Test (SAT) Total Reading and Total Math scores for all students enrolled in the fifth grade during the 1998-1999 school year who were coded as exceptional education students in the schools in the North Area of the district. A contact person at each school was provided with a copy of the printout from his/her school and was asked to highlight each student’s name according to the type of model in which he received primary academic instruction during the 1998-1999 school year as follows: resource room (yellow); co-teaching (pink); and support facilitation (blue).

A cover letter was sent to each school administrator along with the printout to be highlighted. The letter provided a brief description of the purpose of the study and requested that the administrator designate a staff member to complete the highlighting
of the printout. An explanation of the highlighting was provided. Also enclosed in
the mailing was a self-addressed, stamped envelope as well as two complimentary
notepads for the administrator and the staff member designated to complete the
printout. Three weeks after the initial mailing, a phone contact was made with those
schools that had not returned their data as a reminder to do so. In the end, 29 of the
35 schools responded.

Data analysis

One-way Analysis of Variance (ANOVA) was selected as the statistical
measure used to analyze the data as well as Analysis of Covariance (ANCOVA). The
Stanford Achievement Test Total Reading and Total Math scores administered in the
spring of 1998 were used as the baseline data or covariates (pretest) to control for
initial differences resulting from the use of intact groups. The Stanford Achievement
Test scores administered in the spring of 1999 were used as the dependent or criterion
variables (posttest). The independent variable or predictor variable was the type of
service delivery model in which the students were instructed. This variable consisted
of the three levels, resource room, co-teaching, and support facilitation. Alpha levels
of 0.05 or greater were selected as the statistical level of significance for the rejection
of the null hypothesis. The SPSS software program for Windows (2001) was used to
run the statistical methods utilized.

Analysis of the data collected and studied is presented in chapter four. A
discussion of the data analysis, conclusions, recommendations, and suggestions for
further study are presented in chapter five.
CHAPTER IV

Results

This chapter provides analyses of achievement data collected during this research project. This research was initiated to determine the effects of three delivery models, resource room, co-teaching, and support facilitation, on the reading and math achievement of students with mild to moderate disabilities.

Hypotheses

The following hypotheses were considered:

1. There is no significant difference in the reading achievement of students with mild to moderate disabilities when they receive instruction in a resource room, co-teaching, or support facilitation model.

2. There is no significant difference in the math achievement of students with mild to moderate disabilities when they receive instruction in a resource room, co-teaching, or support facilitation model.

Results

Table I reports descriptive statistics for all subjects in each service delivery model for pretest and posttest measures. These results are reported separately for reading and math achievement.
Table I

*Reading Scores by Delivery Model*

<table>
<thead>
<tr>
<th>Group</th>
<th>Pretest</th>
<th></th>
<th></th>
<th>Posttest</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N</td>
<td>Mean</td>
<td>SD</td>
<td>N</td>
<td>Mean</td>
<td>SD</td>
</tr>
<tr>
<td>Resource Room</td>
<td>135</td>
<td>31.3207</td>
<td>17.85915</td>
<td>135</td>
<td>27.5467</td>
<td>21.94609</td>
</tr>
<tr>
<td>Co-Teaching</td>
<td>66</td>
<td>34.9606</td>
<td>16.02066</td>
<td>66</td>
<td>30.3788</td>
<td>19.65181</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>231</td>
<td>32.1584</td>
<td>16.83005</td>
<td>231</td>
<td>28.2762</td>
<td>20.61646</td>
</tr>
</tbody>
</table>

*Math Scores by Delivery Model*

<table>
<thead>
<tr>
<th>Group</th>
<th>Pretest</th>
<th></th>
<th></th>
<th>Posttest</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N</td>
<td>Mean</td>
<td>SD</td>
<td>N</td>
<td>Mean</td>
<td>SD</td>
</tr>
<tr>
<td>Resource Room</td>
<td>135</td>
<td>40.5333</td>
<td>17.83691</td>
<td>135</td>
<td>39.6104</td>
<td>21.02657</td>
</tr>
<tr>
<td>Co-Teaching</td>
<td>66</td>
<td>41.6333</td>
<td>17.17418</td>
<td>66</td>
<td>39.5697</td>
<td>19.65319</td>
</tr>
<tr>
<td>Support Facilitation</td>
<td>30</td>
<td>38.3333</td>
<td>19.92547</td>
<td>30</td>
<td>39.4600</td>
<td>16.27400</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>231</td>
<td>40.5619</td>
<td>17.88165</td>
<td>231</td>
<td>39.5792</td>
<td>20.00335</td>
</tr>
</tbody>
</table>

First, an Analysis of Variance was performed using each dependent measure and service delivery model as the independent variable. These results are reported in Table II and indicate no significant differences between groups on the pretest and no significant differences between groups on the posttest.
Table II

Analysis of Variance by Pretest (98 SAT) and Posttest (99 SAT) Measures

<table>
<thead>
<tr>
<th>Source</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>98 SAT R</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Between Groups</td>
<td>2</td>
<td>392.536</td>
<td>1.391</td>
<td>.251</td>
</tr>
<tr>
<td>Within Groups</td>
<td>228</td>
<td>282.292</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>230</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>99 SAT R</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Between Groups</td>
<td>2</td>
<td>208.863</td>
<td>.489</td>
<td>.614</td>
</tr>
<tr>
<td>Within Groups</td>
<td>228</td>
<td>426.935</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>230</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>98 SAT M</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Between Groups</td>
<td>2</td>
<td>112.436</td>
<td>.350</td>
<td>.705</td>
</tr>
<tr>
<td>Within Groups</td>
<td>228</td>
<td>321.572</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>230</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>99 SAT M</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Between Groups</td>
<td>2</td>
<td>.282</td>
<td>.001</td>
<td>.999</td>
</tr>
<tr>
<td>Within Groups</td>
<td>228</td>
<td>403.641</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>230</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

R = Reading

M = Math

P < .05
Table III presents mean gain scores for students in each of the models (posttest minus pretest). One-way Analyses of Variance (ANOVAs) were run to compare gain score means between groups. These are represented in Table IV. These ANOVAs indicate no significant differences between pretest to posttest gain means for any of the groups in either reading or math. Therefore, the null hypotheses are not rejected. Thus, the types of delivery models in which instruction was delivered appear to have the same statistical effect on the reading and math achievement of these students with disabilities.

Table III

<table>
<thead>
<tr>
<th>Group</th>
<th>N</th>
<th>Mean</th>
<th>SD</th>
<th>N</th>
<th>Mean</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Resource Room</td>
<td>135</td>
<td>-3.7741</td>
<td>12.53337</td>
<td>135</td>
<td>-.9230</td>
<td>15.75974</td>
</tr>
<tr>
<td>Co-Teaching</td>
<td>66</td>
<td>-4.5818</td>
<td>10.06985</td>
<td>66</td>
<td>-2.0636</td>
<td>11.93310</td>
</tr>
<tr>
<td>Support Facilitation</td>
<td>30</td>
<td>-2.8300</td>
<td>11.30118</td>
<td>30</td>
<td>1.1267</td>
<td>14.35438</td>
</tr>
<tr>
<td>Total</td>
<td>231</td>
<td>-3.8823</td>
<td>11.68638</td>
<td>231</td>
<td>-.9827</td>
<td>14.55483</td>
</tr>
</tbody>
</table>
Table IV

Analysis of Variance for Academic Gain Scores

<table>
<thead>
<tr>
<th>Source</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>SAT R Gain</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Between Groups</td>
<td>2</td>
<td>33.548</td>
<td>.244</td>
<td>.784</td>
</tr>
<tr>
<td>Within Groups</td>
<td>228</td>
<td>137.475</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>230</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SAT M Gain</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Between Groups</td>
<td>2</td>
<td>105.540</td>
<td>.496</td>
<td>.610</td>
</tr>
<tr>
<td>Within Groups</td>
<td>228</td>
<td>212.776</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>230</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

R = Reading

M = Math

P < .05

An Analysis of Covariance (ANCOVA) was performed utilizing the 1998 Stanford Achievement Test scores in reading and math as the covariates and the 1999 Stanford Achievement Test scores as the dependent variables. These results are reported in Tables V and VI. Due to the low power, there is no evidence based on this data to indicate that the type of model in which the students were instructed made any difference in their achievement in reading and math.
Table V

*Univariate Analysis of Variance with 99 SAT R as Dependent Variable*

<table>
<thead>
<tr>
<th>Source</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
<th>P</th>
<th>Partial Eta Squared</th>
<th>Observed Power</th>
</tr>
</thead>
<tbody>
<tr>
<td>Corrected Model</td>
<td>3</td>
<td>22141.624</td>
<td>160.406</td>
<td>.000</td>
<td>.679</td>
<td></td>
</tr>
<tr>
<td>Intercept</td>
<td>1</td>
<td>772.478</td>
<td>5.596</td>
<td>.019</td>
<td>.024</td>
<td></td>
</tr>
<tr>
<td>SATR98</td>
<td>1</td>
<td>66007.146</td>
<td>478.191</td>
<td>.000</td>
<td>.678</td>
<td>.091</td>
</tr>
<tr>
<td>MODEL</td>
<td>2</td>
<td>35.973</td>
<td>.261</td>
<td>.771</td>
<td>.002</td>
<td></td>
</tr>
</tbody>
</table>

Table VI

*Univariate Analysis of Variance with 99 SAT M as Dependent Variable*

<table>
<thead>
<tr>
<th>Source</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
<th>P</th>
<th>Partial Eta Squared</th>
<th>Observed Power</th>
</tr>
</thead>
<tbody>
<tr>
<td>Corrected Model</td>
<td>3</td>
<td>15515.389</td>
<td>77.433</td>
<td>.000</td>
<td>.506</td>
<td></td>
</tr>
<tr>
<td>Intercept</td>
<td>1</td>
<td>2016.595</td>
<td>10.064</td>
<td>.002</td>
<td>.042</td>
<td></td>
</tr>
<tr>
<td>SATM98</td>
<td>1</td>
<td>46545.605</td>
<td>232.295</td>
<td>.000</td>
<td>.506</td>
<td>.102</td>
</tr>
<tr>
<td>MODEL</td>
<td>2</td>
<td>65.741</td>
<td>.328</td>
<td>.721</td>
<td>.003</td>
<td></td>
</tr>
</tbody>
</table>

Summary

This chapter has presented an analysis of the data being studied to determine the effects of placement in one of three delivery models on the reading and math achievement of students with disabilities. No statistically significant differences were found for students with disabilities in resource room settings compared to similar
students in co-teaching models and support facilitation models. Thus, the types of delivery models in which the students receive instruction did not produce a statistically significant impact on the reading and math achievement of these students. Further discussion as well as conclusions and recommendations will be presented in chapter five.
CHAPTER V

Discussion, Conclusions, and Suggestions for Further Study

Restatement of the Purpose

The purpose of this study was to determine the effects of three different delivery models on the academic achievement of students with disabilities. The subjects included in this study were 231 students enrolled in the fifth grade during the 1998-1999 school year who had Individual Education Plans (IEP's) that identified them as students with disabilities. Of these students, 135 received special education services within a resource room model, 66 received services in a co-teaching model, and 30 received services in a support facilitation model. All of these students were considered mild to moderate in terms of their needs as indicated by their ratings on the Matrix of Services. The Matrix of Services is a rating scale which is completed by a team including the teacher and the parents. This team examines the needs of each child in five areas including curriculum and learning environment, social/emotional behavior, independent functioning, health care, and communication.

These students were administered the Stanford Achievement Test Eighth Edition (SAT) during the spring of 1998 and during the spring of 1999. The Total Reading and Total Math national percentile scores were converted to normal curve equivalents (NCE's). These scores were entered into a computer software program for analysis. Two statistical procedures were utilized to determine if the model in which the students were instructed had any effect on their achievement in reading and math.
An Analysis of Variance (ANOVA) as well as an Analysis of Covariance (ANCOVA) was used to study the mean differences in the pretest to posttest gains between the three groups. Means were calculated for each of the groups. The means for each of these groups decreased from pretest to posttest with the exception of the scores for the support facilitation group in math that increased. None of these variations, however, proved to be statistically significant. In other words, the differences between the pretest and posttest scores of students in all three models did not vary substantially. Thus, it cannot be said that any of the three models produced greater or less achievement among the students.

Conclusions

The results of this study indicated that there were no statistically significant differences in the achievement scores of students with disabilities in regard to the type of delivery model in which they received instruction. The two hypotheses tested were:

1. There is no significant difference in the reading achievement of students with mild to moderate disabilities when they receive instruction in a resource room, co-teaching, or support facilitation model.

2. There is no significant difference in the math achievement of students with mild to moderate disabilities when they receive instruction in a resource room, co-teaching, or support facilitation model.

No gains were shown in reading for any of the groups. Those students instructed in the resource room setting decreased by an average of 3.7741 NCE’s
(National Curve Equivalents). Those instructed in the co-teaching model decreased by 4.5818 NCE’s. Those instructed in the support facilitation model decreased by 2.8300 NCE’s. None of these decreases were significant at the 0.05 significance level.

In the area of math, decreases were shown by those students in the resource room model (-.9230 NCE’s) and by those students in the co-teaching model (-2.0636 NCE’s). The students in the support facilitation model showed an increase of 1.1267 NCE’s. At the 0.05 confidence level, neither the two decreases nor the one increase were considered statistically significant.

Due to a power concern, the results of this study do not provide any evidence that the type of model in which the students were instructed had a significant impact on their achievement as measured by a nationally normed, standardized achievement test. In other words, it is not possible based upon these findings to confirm that the critical factor in determining student achievement of students with disabilities is the selection of one particular model over another or the selection of a given model based upon the specific needs of each student.

Discussion

The original intent of this study was to measure any differences which may have occurred in the academic achievement of students with disabilities who were instructed in the three different delivery models chosen for this study. The lack of significant differences in their achievement may not necessarily indicate that the three models produce similar achievement results among students with disabilities. There are several other considerations to account for when examining these results.
Data from a nationally normed, standardized achievement test administered during the 1998-1999 school year was utilized because it reflected a student assessment program which was well established in this school district. Changes in this assessment program were being implemented by adding the use of a curriculum-based measure. However, at the time this data was gathered, this curriculum-based measure was in place only for the area of reading in fourth grade and the area of math for fifth grade. Consequently, no gains could be measured in either reading or math from one year to the next. Therefore, it was decided to utilize the Stanford Achievement Test results which could be obtained through a search of archival records in the school district’s data warehouse. It is recognized that this is a gross measure of achievement that lacks evidence to support its validity (Brown, 1992).

No attempt was made in this single year study to determine previous rates of growth on these students in order to make comparisons between more than one delivery model for any given student. In addition, the amount of time students had been enrolled in an exceptional student education program was not identified nor was the amount of time that they were enrolled in a specific model addressed.

An effort was made to control for the severity of the students’ disabilities through the use of the ratings on the Matrix of Services. However, no attempt was made to delineate subjects by type of disability (i.e., specific learning disabilities, mentally handicapped, etc.)

Only one school offered all the range of placement options. Only eleven schools offered two of the three options and thirteen schools offered only one option. Thus, the option chosen for a given student may not necessarily have been based
upon the needs of the student but on what was available at that particular school. In some cases, the options to an individual student within a given school may not have been pure. In other words, it is possible that a child may have received his reading services in a resource room model and his math services in an inclusive setting.

In addition, it should be noted that no attempt was made to evaluate or even describe the type of instructional methods or materials used in any of the three models. Instructional methodology for students in exceptional education programs can differ even within an individual school as may be appropriate to meet the needs of all students. Therefore, the type of reading curriculum, for example, may vary within a single school as well as within various schools utilizing similar delivery models. For example, given three schools implementing a resource room model, one may choose to use the district-adopted basal series, one may use an alternate approach focusing more on decoding instruction, and one may use a literature-based approach. It is likely that the type of curriculum or instructional methodology may be an important factor contributing to the achievement of students with disabilities.

Another variation which was not addressed but may occur among schools is that of the number of students serviced at any given time in resource room programs. It should be noted and recognized that class size during reading instruction may itself have a distinct impact on student achievement (Moody, Vaughn, Hughes, & Fischer, 2002).

Implications

Although the results of this study are statistically insignificant, the fact remains that the achievement of these students with disabilities decreased in all three
models in the area of reading and in two of the three models in the area of math. The only area of increase was in math in the support facilitation model. This raises a question of concern as to the quality of instruction being provided to these students with mild to moderate disabilities. If these students are not demonstrating growth academically, several questions arise as to the appropriateness of their Individual Education Plans. Are the needs of these students being accurately identified? Are the services offered congruent with those needs? Does the type of service delivery model offer the most appropriate and effective instructional strategies and curriculum?

Suggestions for Further Study

This particular school district as well as the rest of the state has changed its assessment program since the year focused on in this study. The current program utilizes a norm-referenced assessment in grades three, four, and five for reading and math as well as a measure which is curriculum based in that it measures specific instructional performance standards. For students with learning problems, a curriculum-based measure may prove to more accurately measure achievement in reading and math. Therefore, replication of this research model utilizing similar students in current settings and utilizing this curriculum-based measure may better determine the impact of instruction in these different models on student achievement.

This study controlled to a degree for severity of disabilities through the use of the Matrix of Services ratings. This study utilized the total rating on this instrument that covers all of the areas assessed. Further studies may want to focus only on the rating in the domain of curriculum and learning environment. This would isolate this
area and avoid interference of the other domains in determining the learning needs of the students under investigation.

Another area not addressed in this study is the number of minutes of service students receive. This is based upon the severity of the students' needs as well as the amount of services required.

Further studies may want to also control for type of disability. It is possible that specific program models may be more beneficial for a particular disability category (Carlberg & Kavale, 1980).

The type of instructional methodology or curriculum was not addressed in this study. It may be advisable to compare instructional settings in which the curriculum or strategies used for instruction are similar. This would better isolate the setting as the predictive factor in the students' achievement.

This study covered a period of one school year. Future studies may want to concentrate on multiple years to determine if there are any differences in academic progress over a longer period of time. It is likely that students with disabilities require a longer period of time to demonstrate academic gains since they have experienced difficulty with learning since they started school (Zigmond, et al, 1995). This would also enable the researcher to focus on other grade level students. It is possible that an inclusive setting may be more successful for students in younger grades where the learning gap is not so great. For example, a second grade student reading at a first grade level may receive more appropriate services in an inclusive setting than a fifth grade student reading at that same level.
Another area not addressed in this study was that of staff preparation for inclusion efforts. It would be advisable to investigate the degree of staff development offered to teachers when implementing the various models.

Due to the possibility of differing interpretations of the same model across school settings (Murawski & Swanson, 2001), greater care should be taken to insure consistency in this area. In other words, specific criteria should be established in defining each model. Only those schools with models adhering to these definitions should be utilized. In addition, clarification should be made for each individual student as to the exact model in which he received reading and math instruction, as it is possible that one child might participate in two different models for the two subjects. Only students enrolled in schools in which all three options are available should be utilized for the study. This would eliminate the possibility that an option was not chosen for a student solely because it was not available within the school.

Finally, due to the various factors that impact the achievement of students with disabilities, obtaining some measure non-academic factors may prove useful. These would include areas such as self-esteem and social skills.

Summary

The history of the education of students with disabilities has been from the beginning a quest for inclusion. The question of where these students are educated has been paramount. As the "inclusion movement" has proceeded, this question has superceded the type of instructional methodology used. Often the question of placement along the continuum of services is based not solely on the degree of academic achievement to be attained. It is based upon the right of the students to be
in a setting most comparable to that of their peers without disabilities. This research study focused on the question of where services were delivered, not the what or how relative to instruction or curriculum. It should be noted that any conclusions drawn as a result of this study are limited due to the lack of treatment validity.

Although not statistically significant, there was a decrease in the performance of students taught in all three models in the area of reading and in two of the models in the area of math. While this may be the result of chance, it warrants further investigation into the decision making process for placement in one of the various models of delivery as well as into the type of instruction which is offered in these models. While other goals may exist, growth in academic achievement for students with mild to moderate disabilities should be an expected outcome of the implementation of the Individual Education Plan.

In conclusion, the effectiveness of instructional programming for students with disabilities depends on the efforts made to meet individual needs as addressed on the Individual Education Plans. As the state of Florida has recognized in its reformed funding model, needs are not solely determined by the type of exceptionality classification. They are, in fact, based upon a variety of factors as measured by the Matrix of Services rating document. These include learning characteristics as well as social and emotional development, levels of independent functioning, health needs, and communication skills. These factors all play a role in academic success of any students and do so as well for students with disabilities. Placement in a given model and success in that model is reflective of not only the quality of instruction delivered (Moody, Vaughn, Hughes & Fischer, 2000) but also on the readiness of the student to
receive that instruction based upon all of these multiple factors. Thus, the model itself does not seem to be the key variable to predict student achievement with these students whose needs can be quite varied with regard to these factors.
Appendix A

Cover Letter
Dear Principal:

I am enrolled as a doctoral student in Educational Leadership at Florida Atlantic University. My dissertation is focusing on the academic achievement of students with disabilities in co-teaching, resource room, and support facilitation delivery models. I have been able to collect most of my data through a BRIO download. However, I still need information that can only come from the schools at which these students were enrolled in the year under study.

My target population is exceptional education students enrolled in fifth grade during the 1998-1999 school year who took the Stanford Achievement Test. I am interested only in those mild to moderately disabled students (matrix ratings of 251 or 252) who received services through a resource room, co-teaching, or support facilitation model. You can help me by designating a staff member to assist with coding my information.

For those students listed, please highlight in pink those who received their services primarily in a resource room, in green those who received services primarily through a co-teaching model, and blue those who received services primarily through support facilitation. Again, try to highlight only those students who would have had a 251 or 252 matrix rating or who had mild to moderate needs, if possible. Only include those Speech/Language students who received academic support through one of these models in addition to their language, articulation or fluency services.

Enclosed are two notepads as tokens of my sincere appreciation for your assistance in my data collection. Please share one with the person to whom you delegate this task. I have enclosed a stamped, self-addressed envelope for your convenience in returning this list.

I know this is an extremely busy time and that your staff will soon depart for summer vacation. I would appreciate any time you or your designee can give to highlighting and returning this form to me within the next two weeks.

Sincerely,

Rene Shaw
Assistant Principal
Country Hills Elementary
Appendix B

References
References


Board of Education of Sacramento City Unified School District v. Rachel Holland, 14 F.3d 1398 (9th Cir. 1994).


Clyde K. v. Puyallup School District, No. 335 F.3d 1396 (9th Cir. 1994).

Daniel R.R. v State Board of Education et al, 874 F.2d 1036 (5th Cir. 1989).


Individuals with Disabilities Education Act (IDEA) Amendments of 1997.


Oberti v. Clementon School District, 995 F. 2d 1204 (3rd Cir. 1993).


Poolaw v. Bishop, 67 F.3d 8830 (9th Cir. 1995).


Roncker v. Walter, 700 F.2d 1058 (6th Cir. 1983).


