The Effects of Prereferral Intervention Through the Connecticut Early Intervention Project on Special Education Prevalence Rates in Connecticut Schools

Marianne Eike Kirner
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THE EFFECTS OF PREREFERRAL INTERVENTION THROUGH THE CONNECTICUT EARLY INTERVENTION PROJECT ON SPECIAL EDUCATION PREVALENCE RATES IN CONNECTICUT SCHOOLS

A Dissertation
Presented in Partial Fulfillment
of the Requirements for the Degree
Doctor of Philosophy

by

Marianne Eike Kirner

May 2000
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ABSTRACT

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by

Marianne Eike Kirner

Chair: James A. Tucker
ABSTRACT OF GRADUATE STUDENT RESEARCH

Dissertation

Andrews University
School of Education

Title: THE EFFECTS OF PREREFERRAL INTERVENTION THROUGH THE CONNECTICUT EARLY INTERVENTION PROJECT ON SPECIAL EDUCATION PREVALENCE RATES IN CONNECTICUT SCHOOLS

Name of researcher: Marianne Eike Kirner

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Problem

Prereferral intervention has been implemented in many schools across the country as one systemic solution to concerns about special education prevalence rates. This study analyzed change in special education prevalence rates in Connecticut schools participating in the Early Intervention Project (EIP) as compared to Connecticut schools not participating in the project. The project incorporates a building-based team using a problem-solving approach to provide prompt and sustained support to classroom teachers who request assistance in working with students who are at risk of referral for special education.
Method

The research design consisted of a comparison of special education prevalence change rates. Prevalence change rate was the dependent variable. The principle independent variable was participation in the Connecticut Early Intervention Project (EIP) by a school, using the designations “EIP” school and “non-EIP” school. A one-way analysis of variance was performed to determine if there were significantly different special education prevalence change rates.

Additional analyses were conducted on EIP schools using two attribute independent variables, race/ethnicity and Connecticut’s education reference groups (ERGs), on which one-way analyses of variance were also performed. After finding the main effect, a third attribute independent variable, initial year of EIP participation, was used. The data were more closely examined through two additional comparisons, calculation of the Spearman’s rho correlation coefficient and a one-way analysis of variance.

Analyses were conducted at the school level. There were 864 public schools across 169 districts in Connecticut.

Results

The mean special education prevalence change rates between schools participating in EIP and non-EIP schools were found to differ significantly, $F(1,862) = 4.876, p < .05$. There was also a significant difference in the special education prevalence change rates between ERGs in EIP schools, $F(8,149) = 3.385, p < .05$. 

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Conclusions

The results support the use of the EIP model in Connecticut. This prereferral intervention model and the subsequent instructional and behavioral strategies associated with it can be expected to reduce the rate of referral for possible special education placement, thus lowering the special education prevalence rate.
For Michael

with admiration and with thanks
for all the love and all the joy
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CHAPTER I

INTRODUCTION

Overview and Background

There is both professional and public concern regarding the total number of students who are eligible for special education and related services (Armstrong, 1985; Bay, Bryan, & O'Connor, 1994; Meredith & Underwood, 1995; Patton, 1998; "Reforming Special Education," 1999; Sack, 1998; Shapiro et al., 1993). This concern has existed since the enactment of federal special education law (Algozzine, Ysseldyke, & Christenson, 1983; Chalfant, Pysh, & Moultrie, 1979; Sarason & Doris, 1979; Tucker, 1980; Weiner, 1985; Will, 1984). For various reasons, there is dissatisfaction among educators, lawmakers, and the general public regarding the increasing numbers of children receiving special education services (Connecticut State Department of Education, 1998c; "Reforming Special Education," 1999; Sack, 1998; Senate Report No. 46, 1997). The concerns focus on the procedures used for referral, assessment, placement and programming, the spiraling costs of these services, legal fees, and the outcomes for students. Policy makers are calling for a reduction in the number of students identified as needing special education services (Connecticut State Department of Education, 1998c; Senate Report No. 46, 1997).
Proponents for lowering special education identification rates argue that many students who are now considered disabled are not truly disabled (Gardner, 1984; Patton, 1998; Sack, 1998; Shepard, Smith, & Vojir, 1983; Will, 1984; Ysselydke, Algozzine, Shinn, & McGue, 1982), or have such mild disabilities that general education teachers can be expected to meet their needs effectively (Algozzine, Christenson, & Ysseldyke, 1982; Chalfant et al., 1979; Connecticut State Department of Education, 1998c; Graden, Casey, & Bonstrom, 1983; Lieberman, 1984; Will, 1986a). Labeling is viewed as adversely affecting expectations regarding student success, including academic achievement, behavior, and social interactions (Buckley, 1989; Granger & Granger, 1986; Wang, Reynolds, & Walberg, 1986; Will, 1986a). Accusations have been made that students receiving special education are exposed to a “watered down” curriculum (Gartner & Lipsky, 1987; Snow, 1984) and are exempted from standards and tests routinely applied to other students, including district-wide and state-level standardized testing (Connecticut State Department of Education, 1998c; Gartner & Lipsky, 1987; McCarthy, 1983; McLaughlin, 1993; Merrow, 1996; Zlato, 1994). Professionals in education and human services are concerned with the social stigma that is perceived as unavoidable when one is identified as having disabilities (Coles, 1987; Sack, 1998; Will, 1986a).

Other concerns center around the amounts of time, money, and energy expended to determine which students are eligible (Gardner, 1984; Reschly, 1989; Sack, 1998; Stainback & Stainback, 1984). The concern is that identifying some
students as "special" perpetuates separate administrative structures (Gartner & Lipsky, 1987; Jenkins, Pious, & Peterson, 1988; Merrow, 1996; Meredith & Underwood, 1995; Stainback & Stainback, 1984; Wang et al., 1986). These separate administrative structures contribute to a lack of coordination and cooperation between general and special education. This dual system creates artificial barriers precluding the most effective and efficient utilization of limited resources. In an interview with John Merrow (1996), the Colorado Director of Special Education Brian McNulty described these separate administrative structures as "our own worst nightmare... Those two systems do not interact very well" (p. 38).

The overrepresentation of minorities and low-income children in special education is also an urgent and volatile issue. It has been asserted by many researchers and advocates that professionals charged with determining eligibility apply different and, at times, discriminatory criteria and standards to students, based on ethnicity and socioeconomic status (Artiles & Trent, 1994; Grossman, 1998; Patton, 1998; Tucker, 1980). In the current climate of school restructuring and reform, it is also argued that the resulting lowered expectations and ineffectual teaching practices in special education programs place minority and low-income children in significant jeopardy (Grossman, 1998; Obiakor, 1999). In all probability, disproportion is the result of multiple interacting factors that are "inextricably confounded" (Heller, Holtzman, & Messick, 1982, p. 4) in any individual instance.
Statement of Problem

Studies regarding special education processes have identified serious issues in referral, evaluation, and placement practices. Research indicates that 92% of all referrals for special education evaluation result in formal testing of children and, 73% of those tested are ultimately placed in special education settings (Algozzine et al., 1982; Sevcik & Ysseldyke, 1986). The decision to refer a student for special education evaluation has been considered tantamount to identification and placement (Ysseldyke, Thurlow et al., 1983).

Algozzine et al. (1982) found that between 3% and 6% of the total school age population is referred annually. Given the high probability of special education assessment and placement following most referrals, the number of students who are identified as being in need of special education and related services appears to be increasing faster than available resources.

Prereferral intervention strategies/procedures have been implemented in many schools across the country as one systemic solution to concerns about special education prevalence rates (Carter & Sugai, 1989; Nelson, Smith, Taylor, Dodd, & Reavis, 1992; Schrag & Henderson, 1996; Wood, Lazzari, Davis, Sugai, & Carter, 1990). Prereferral efforts, including building-based, problem-solving teacher teams, are undertaken to provide immediate assistance to classroom teachers in addressing the academic, behavioral, and/or social difficulties of a student. These prereferral interventions are seen as an alternative to referring students for evaluation for special education eligibility. Instead, students' academic or behavioral or social
difficulties can be ameliorated as they occur in the general education classroom. The objectives for prereferral intervention include:

1. To preclude both inappropriate referral of students to special education and identification of students for special education, particularly those students who demonstrate academic, behavioral, and/or social needs that can be met in the general education classroom (Brown, Gable, Hendrickson, & Algozzine, 1991; Graden, Casey, & Christenson, 1985; Kruger, Struzziero, Watts, & Vacca, 1995; Schrag & Henderson, 1996; Sindelar, Griffin, Smith, & Watanabe, 1992)

2. To identify teaching strategies that are effective in the classroom (Brown et al., 1991; Chalfant & Pysh, 1989; Graden, 1989; Graden, Casey, & Christenson, 1985; Pugach & Johnson, 1989; Schrag & Henderson, 1996; Sindelar et al., 1992)

3. To enhance the skills of teachers with respect to meeting the instructional needs of increasingly diverse groups of students (Chalfant & Pysh, 1989; Cosden & Semmel, 1992; Kruger et al., 1995; Pugach & Johnson, 1989; Wood et al., 1990).

Prereferral intervention is an approach currently supported by a majority of State Education Agencies (SEAs) (Carter & Sugai, 1989; Nelson et al., 1992; Wood et al., 1990) and it is a common component of SEA policy and procedures (Schrag & Henderson, 1996).

Prereferral intervention can be broadly defined as a systematic effort to assist classroom teachers in the education of students experiencing difficulty in school (Pugach & Johnson, 1989). There are many models of prereferral intervention. These models are identified by an assortment of names (e.g., teacher
assistance teams, prereferral intervention teams, student assistance teams), but all of the models involve having educators work collaboratively to develop, implement, and evaluate instruction and/or classroom management as conducted in the general education classroom. Thus, these models are generally preventative, problem-solving-oriented processes designed to provide indirect services to students and to reduce the need for special education services. There is a limited amount of research dedicated to the question of the impact of these models on special education placement rates and resulting prevalence (Bay et al., 1994; Cosden & Semmel, 1992; Ingalls & Hammond, 1996; Ivarie & Russell, 1992; Kruger et al., 1995; Rosenfield, 1992; Sargent, 1992), and most of this research occurred prior to 1995. Other studies regarding prereferral teams have varied with respect to the focus of their research questions or methodology. Some have reviewed the impact of these teams on referral rates (Beck, 1993; Buchholz & Pruitt, 1986; Chalfant & Pysh, 1989; Chalfant et al., 1979; Cosden & Semmel, 1992; Fuchs, Fuchs, & Bahr, 1990; Nelson et al., 1992; Ponti, Zins, & Gradon, 1988; Singer, 1993; Whitten & Dieker, 1995). Still others have looked at teacher or team satisfaction or functioning (Bay et al., 1994; Chalfant & Pysh, 1989; Chalfant et al., 1979; Harrington & Gibson, 1986; Harris, 1995; Hayek, 1987; Ivarie & Russell, 1992; Kovaleski, Tucker, & Duffy, 1995; Kruger et al., 1995; Singer, 1993), but not the impact on special education prevalence. A final group of studies has considered the range of services or strategies resulting from prereferral intervention (Bahr, 1994; Brown et al., 1991; Kovaleski et al., 1995; Nelson et al., 1992; Phipps, 1998; Ponti

Purpose of the Study

In Connecticut, with the fourth highest prevalence rate in the nation (U.S. Department of Education, 1998), there is concern regarding the growing prevalence rate for special education disabilities (Connecticut State Department of Education, 1998c). Connecticut's Early Intervention Project (EIP) was designed to provide systems within schools to support students in general education classrooms with learning and/or behavior problems in order to improve student achievement and reduce inappropriate referrals to special education. The project incorporates a building-based team using a problem-solving approach to provide prompt and sustained support to classroom teachers who request assistance in working with students who are at risk of referral for special education evaluation (Connecticut State Department of Education, 1998c; Douville, 1988).

Connecticut EIP teams help teachers with analyzing problems, collecting curriculum-based and observation-based assessments, setting goals, and devising strategies and interventions. The overall purpose is to support teachers in addressing student problems without removing the student from the general education classroom. A fundamental premise of EIP is the establishment of building-based teacher teams that move away from an "expert" model of problem solving to one that institutionalizes the role of classroom teachers as the "experts" (Connecticut State Department of Education, 1992).
Previous self-reported data from schools participating in the Connecticut Early Intervention Project indicate that schools participating in EIP have decreased the rate of requests for formal testing and evaluation through the special education process. EIP schools have reported that only 26% of the total number of students served through EIP teams have been subsequently referred to special education (Connecticut State Department of Education, 1998a). These self-reported data would therefore suggest that the percentage of students actually identified and placed in special education was reduced. A successful program of prereferral intervention can be expected to solve problems before they require a more intrusive and restrictive intervention, thus reducing the number of more serious instructional and management problems (Sindelar et al., 1992).

This study analyzed change in special education prevalence rates in Connecticut schools participating in the EIP as compared to Connecticut schools not participating in the EIP (non-EIP). Thus, the dependent measure of success was the change in special education prevalence.

Research Questions and Hypotheses to Examine

The following research questions and hypotheses pertain to the collaborative early intervention model of instructional/behavioral support (the EIP model) in Connecticut:

Question 1. Is there a significant difference between special education prevalence change rates in EIP schools and non-EIP schools?
Null Hypothesis 1. There is no significant difference between special education prevalence change rates in EIP and non-EIP schools.

Question 2. Is there a significant difference in special education prevalence change rates between racial/ethnic groups in EIP schools?

Null Hypothesis 2. There is no significant difference in special education prevalence change rates between racial/ethnic groups in EIP schools.

Question 3. Is there a significant difference in special education prevalence change rates between the nine Connecticut education reference groups (ERG) of EIP schools?

Null Hypothesis 3. There is no significant difference in special education prevalence change rates between the nine education reference groups (ERG) of EIP schools.

Rationale

The state of Connecticut requires school districts to develop and implement prereferral intervention: “Before a child is referred to the planning and placement team, alternative procedures and programs in regular education shall be explored and where appropriate, implemented” (Connecticut Regulations Concerning Children Requiring Special Education, 1986, p. 23). Connecticut schools employ a variety of prereferral intervention approaches. Administrators ensure that their schools are in compliance with the prereferral intervention mandate although they may lack formal procedures with which to monitor or evaluate the effectiveness of both the approaches and the prereferral intervention process itself. Connecticut’s
EIP is a formalized version of a school-level prereferral intervention team model and is utilized by approximately 150 schools in 50 districts in the state.

A review of national research on school-based intervention assistance teams indicates that sustained model programs typically result in reductions in special education referral rates (Chalfant & Pysh, 1989; Fuchs, Fuchs, et al., 1990; Graden, Casey, & Bonstrom, 1985; Pugach & Johnson, 1995). In Pennsylvania, which instituted a statewide team model, referrals to special education decreased by almost one-half in schools that implemented the model over a 3-year period (Kovaleski et al., 1995). Consistent with these findings, approximately 25% of the students served by EIP teams in Connecticut are subsequently referred to special education as compared to a significantly higher percentage from non-EIP schools (Connecticut State Department of Education, 1998c). The question remains as to whether this decrease in referrals in EIP schools has resulted in a change in overall special education prevalence which differs from a change in overall special education prevalence for schools not using EIP: Does the EIP model make a difference?

Importance of Study

Interest in prereferral intervention has increased significantly since teacher assistance teams were first initiated in the early 1970s and presented in the literature by Chalfant et al. (1979). Prereferral intervention exemplifies an educational practice that addresses the needs of at risk learners in general education and enhances the skills of school professionals through collaborative problem solving.
Yet from a research perspective, the relative "infancy" of prereferral intervention (Graden, Casey, & Christenson, 1985; Ysseldyke, Pianta, et al., 1983) has precluded the establishment of an extensive knowledge base. The widespread adoption of prereferral intervention has been described (Carter & Sugai, 1989; Del’Homme, Kasari, Forness, & Bagley, 1996; Will, 1986a; Wood et al., 1990). A number of empirical studies have also examined various aspects of prereferral (Bay et al., 1994; Beck, 1993; Brown et al., 1991; Buchholtz & Pruitt, 1986; Chalfant & Pysh, 1989; Chalfant et al., 1979; Cosden & Semmel, 1992; Fuchs, Fuchs, et al., 1990; Fuchs, Fuchs, Bahr, Fernstrom, & Stecker, 1990; Graden, Casey, & Bonstrom, 1985; Graden, Casey, & Christenson, 1985; Harrington & Gibson, 1986; Harris, 1995; Hayek, 1987; Ingalls & Hammond, 1996; Ivarie & Russell, 1992; Kovaleski et al., 1995; Kruger et al., 1995; Nelson et al., 1992; Phipps, 1998; Ponti et al., 1988; Pugach & Johnson, 1989, 1995; Rosenfield, 1992; Sargent, 1992; Schram & Semmel, 1984; Singer, 1993; Whitten & Dieker, 1995). A 1992 review of the literature concluded that preliminary findings from a number of studies were encouraging and widespread implementation should ensue while research on prereferral intervention should also continue (Sindelar et al., 1992).

This study was designed to contribute to the formulation of public policy regarding the special education prevalence dilemma. Although studies have suggested that referral rates can be lowered by prereferral systems, the widespread continuing problem of special education prevalence indicates the necessity of determining the effect of formalized systems on changing prevalence.
Definition of Terms

The following list of definitions provides clarity and explanation regarding various aspects of this study:

**Special Education Prevalence:** In education, the prevalence rate for special education is defined as the percentage of students in a given population determined to be eligible by the nature of their disability for special education and related services. It is computed as the total special education student population divided by the total number of students in the school age population (Kauffman, 1993). In this study and in most applications in the field of education, December 1 student counts are used as the source of data. This method is best understood as an estimate because it involves the use of student data for a specific day, December 1, to represent the entire school year. Even with this limitation, state and federal data reports use the December 1 counts to compute prevalence percentages. This means that the computed prevalence is an approximate figure for the school year because services initiate or terminate for students every day (Algozzine & Korinek, 1985).

**Special Education Prevalence Change Rate:** The special education prevalence change rate was the dependent variable in this study. This change rate was computed by subtracting the 1993-1994 special education prevalence rate from the 1997-1998 special education prevalence rate for each school building. The resultant difference showed the amount of special education prevalence change over the 4-year period of this study.
Prereferral Intervention: Prereferral intervention is defined as the strategies and procedures undertaken to provide immediate assistance to classroom teachers in addressing the academic, behavioral, and/or social difficulties of a student. Prereferral intervention is an alternative to referring students for evaluation for special education eligibility. Students' academic or behavioral or social difficulties are addressed and hopefully ameliorated as they occur in the general education classroom (Chalfant & Pysh, 1979).

Connecticut's Early Intervention Project (EIP): This training and technical assistance project was designed to establish systems of prereferral intervention within schools to support students in general education classrooms with learning and/or behavior problems in order to improve student achievement and reduce inappropriate referrals to special education. The project incorporates a building-based team using a problem-solving approach to provide prompt and sustained support to classroom teachers who request assistance in working with students who are at risk of referral for special education evaluation (Connecticut State Department of Education, 1992).

Early Intervention Project (EIP) Model: The Early Intervention Project (EIP) Model establishes building-based teams of primarily regular classroom teachers charged with assisting classroom teachers struggling with a student's learning and/or behavior problems to analyze the problem(s), collect curriculum-based and observation-based assessments, set goals, and devise strategies and interventions. The overall purpose is to support teachers through systemic prereferral intervention
to address student problems without removing the student from the general education classroom. A fundamental premise of EIP is to facilitate the establishment of building-based teacher teams that move away from an "expert" model of problem solving to one that institutionalizes the role of classroom teachers as the "experts."

EIP Schools: There were 864 public schools in Connecticut at the time of this study. This population of schools was classified into EIP schools and non-EIP schools. Schools defined as EIP schools had participated in the training and technical assistance provided through the Connecticut Early Intervention Project (EIP) as described above.

Non-EIP Schools: There were 864 public schools in Connecticut at the time of this study. This population of schools was classified into EIP schools and non-EIP schools. Schools defined as non-EIP schools had not participated in the training and technical assistance provided through the Connecticut Early Intervention Project (EIP) as described above.

Education Reference Groups (ERG): To assist in reporting and analyzing school district data, the Connecticut State Department of Education developed Education Reference Groups (ERG). This is a classification system designed to compare groups of districts that have similar characteristics. The state's public school districts have been divided into 9 groups (ERG A through ERG I) based on socioeconomic status, indicators of need, and enrollment. ERG A consists of 12 affluent suburbs with an average income, education level, and percentage of
families in professional occupations significantly higher than any other group. ERG B consists of 19 districts with the second-highest income and other socioeconomic attributes. ERGs C through I include districts with successively lower socioeconomic indicators. ERG I includes 7 districts with the lowest socioeconomic indicators. ERG is an ordinal variable used as an independent variable in this study.

General Methodology

The research design consisted of a comparison of special education prevalence change rates. Prevalence change rate was the dependent variable. The principle independent variable was participation in the Connecticut Early Intervention Project (EIP) by a school, using the designations “EIP” school and “non-EIP” school.

The first null hypothesis was tested by determining whether two groups, EIP schools and non-EIP schools, had significantly different special education prevalence change rates. A one-way analysis of variance was performed. To test the second null hypothesis, that there is no difference in special education prevalence change rates between the racial/ethnic groups in EIP schools, another one-way analysis of variance was performed. To test the third null hypothesis, that there is no difference in special education prevalence change rates between the Connecticut education reference groups (ERGs), a one-way analysis of variance was performed. In all cases, the .05 level of significance ($p < .05$) was used.
After finding the main effect, the data were more closely examined through two additional comparisons. The first was the calculation of the Spearman's rho correlation coefficient to determine if there was a correlation between the special education prevalence change rate and the initial year of EIP participation.

The second comparison involved recoding the initial year of EIP participation of EIP schools into a new variable: initial year of EIP participation by quartiles. Following the quartile recoding, an additional one-way analysis of variance was performed to determine if there was a difference in special education prevalence change rates between the EIP schools quartiles for the initial year of EIP participation. The .05 level of significance ($p < .05$) was used.

Delimitations

The following delimitations were inherent in the study design:

1. This study was done in Connecticut, a state with one of the highest socioeconomic levels in the country (U.S. Department of Education, 1990). Although there is a full range of socioeconomic diversity (from ERG A through ERG I), Connecticut has a greater proportion of high socioeconomic schools than most states.

2. The study involved a limited number of EIP schools with a sufficient number of students in each of the racial/ethnic categories to warrant inclusion of these schools in racial/ethnic analysis.
Limitations

The following limitations were inherent in the study design:

1. The degree of implementation, or treatment integrity, of the EIP model in EIP schools at the time of the study was unknown. Treatment integrity refers to the extent to which "a treatment is implemented as intended" (Mortenson & Witt, 1998, p. 613). It may be that some schools classified for this study as EIP schools due to their participation in the training and technical assistance program were, in fact, only minimally engaged in the EIP model. To the extent that this in fact existed, any positive change score for EIP schools would be under-represented in this study.

2. At the time of this study, the extent of implementation of a prereferral intervention model in non-EIP schools was unknown. In all likelihood, non-EIP schools were participating in some type of prereferral intervention because Connecticut is a state that requires school districts to develop and implement prereferral intervention: "Before a child is referred to the planning and placement team, alternative procedures and programs in regular education shall be explored and where appropriate, implemented" (Connecticut Regulations Concerning Children Requiring Special Education, 1986, p. 23). Connecticut schools employ a variety of prereferral intervention approaches. To the extent that this in fact existed, any positive change score for EIP schools would be under-represented in this study.

3. It was unknown at the time of this study if non-EIP schools using a prereferral intervention model were using a model similar to EIP. This may be the case as EIP was initiated in 1985. EIP-trained personnel (teachers and
administrators) from EIP schools have transferred to non-EIP schools and facilitated 
the establishment of prereferral teams. Personnel from EIP schools have presented 
at national and state-level workshops and conferences. EIP materials have been 
disseminated to administrators and teachers throughout the state. To the extent that 
this in fact occurred, any positive change for EIP schools would be under- 
represented in this study.

4. Unknown systemic changes in special education programming unrelated 
to EIP may have affected the special education prevalence change rates in some 
schools. The removal of a special education program from a school or the 
establishment of a special education program in a school during the term of this 
study may have had direct impact on a school's special education prevalence change 
rate. To the extent that these types of changes existed, they may have created 
variance that would mask some of the EIP effect.

Organization of Study

This first chapter has provided an introductory overview of the study. 
Chapter 2 provides a review of the literature on special education prevalence rates, 
including concerns regarding overidentification of students for special education 
services: issues of validity in evaluation and identification in special education; 
questions regarding the quality of instruction provided in special education; issues 
of racial/ethnic bias; and research on prereferral intervention. Chapter 2 concludes 
with a review of the Connecticut Early Intervention Project (EIP), a training and 
technical assistance program designed to provide schools with systems to support
students with learning and/or behavior problems in general education classrooms. Chapter 3 outlines the methodology used in the study. The results are reported in chapter 4, and chapter 5 delineates conclusions and recommendations for future study.
CHAPTER II

REVIEW OF RELATED LITERATURE

Introduction

There is considerable dispute about the appropriate prevalence rates for public school students eligible for special education and related services. This dispute began with the congressional debate prior to the passage of Public Law 94-142, the landmark legislation that resulted in the Education of the Handicapped Act (EHA). In 1975, the Senate bill included a funding cap of 10% of the total school population (Weiner, 1985; Weiner & Hume, 1987). The House bill proposed a cap of 12%, which was adopted in the Act (Gartner & Lipsky, 1987; Weiner, 1985; Weiner & Hume, 1987). Currently states must serve all eligible children with disabilities, and a proportion of the funds needed is provided by the federal government for up to 12% of each state's total school population ages 3 through 17 (Chaikind, Danielson, & Brauen, 1993; U.S. Department of Education, 1997). Although agreement on a "12% cap" was reached legislatively, there continues to be no clear educational consensus about prevalence rates. The original congressional debate served as a foreshadowing of this ongoing professional and political issue (Algozzine et al., 1982; Algozzine & Korinek, 1985; Algozzine et al., 1983; Armstrong, 1985; Bay et al., 1994; Buckley, 1989; Gardner, 1984; Graden et
al., 1983; Mamlin & Harris, 1998; Patton, 1998; “Reforming Special Education,” 1999; Sack, 1998; Senate Report No. 46, 1997; Shepard & Smith, 1983; Tucker, 1980, 1981). This literature section describes the evolution of special education prevalence issues since the inception of the law. References span three decades, particularly the last 20 years, in order to clearly delineate and articulate the progress of the debate.

Special Education Prevalence Rates

In education, the prevalence rate in special education is defined as the percentage of students in a given population determined to be eligible for special education and related services. It is computed as the total special education student population divided by the total number of students in the school-age population (Kauffman, 1993). It is best understood as an estimate, as it involves the use of student data for a specific day, i.e., December 1. Even with this limitation, it generally serves as a prevalence percentage for a school year. This means that the computed prevalence is an approximate figure for the school year because services initiate or terminate for students every day (Algozzine & Korinek, 1985).

The U.S. Department of Education’s Twentieth Annual Report to Congress (1998) on the implementation of the Individuals with Disabilities Education Act (IDEA), formerly EHA, documents a steady increase in the number of students served since the initial child count in 1976-77. A total of 5,783,480 children and youth with disabilities, ages 3-21, were served under IDEA during the 1996-97 school year. This was an increase of 168,715 (or 2.9%) from the previous year (U.S.
Department of Education, 1998) and an increase of 1,821,583 (or 31.5%) from the first reported child count (U.S. Department of Health, Education and Welfare, 1979). Yet the total 3-21 population has decreased slightly, approximately 0.2% (U.S. Department of Health, Education and Welfare, 1979; U.S. Department of Education, 1998). Thus, the growth of the number of students receiving special education yields an increase in special education prevalence.

The literature provides six primary explanations for the significant increase in the prevalence of children identified as being in need of special education and related services:

1. **Children previously not served.** IDEA was intended to provide services for increased numbers of previously unserved students. Under mandates to find unserved students and deliver services to individuals between 3 and 21 years of age, schools are attempting to serve all of this nation's students with disabilities (Algozzine et al., 1982; Algozzine et al., 1983; Ballard & Zettel, 1977; Senate Report No. 46, 1997; Smith, Dowdy, Polloway, & Blalock, 1997; U.S. Department of Education, 1997; Will, 1986a, 1986b).

2. **Funding availability.** An increase in the numbers of students served is a logical consequence of increased funding (Algozzine et al., 1982; Gardner, 1984; Granger & Granger, 1986; "Reforming Special Education," 1999; Tucker, 1992).

3. **More students come to school with problems/deficits.** Increasing numbers of students are experiencing home and family problems as well as within-student deficits, dysfunctions, and disabilities (Bay et al., 1994; Children's Defense...
Fund, 1994; Connecticut State Department of Education, 1999a; Glidewell & Swallow, 1969; Schrag & Henderson, 1996). These students are often thought to be in need of special education services. General education teachers and others refer these students for special education evaluation (Algozzine et al., 1982; Gardner, 1984; Sevcik & Ysseldyke, 1986). Christenson, Ysseldyke, Wang, and Algozzine (1983) found that teachers do not systematically attempt any classroom interventions, but rather immediately attribute student problems to internal student causes. Reschly (1988b) found that only 25% of prereferral efforts involved the collection of baseline data, systematic implementation of interventions, or application of an objective measure of the intervention.

4. Identification system in place. Special education law has outlined a massive system of identification. This identification system has been characterized as targeting resources (Algozzine & Korinek, 1985; Will, 1986b). Coupled with an increase in the availability of special education programs and services and the decrease in other remedial/alternative efforts, the identification system has fostered an increased movement of students from regular to special education services (Bay et al., 1994; Gartner & Lipsky, 1987; Jenkins et al., 1988; Ysseldyke, Algozzine, & Thurlow, 1994).

5. Misuse of identification system. This massive identification system has also been attributed with accommodating an increasing lack of tolerance by teachers for student differences (Ysseldyke et al., 1994) and facilitating an inability or unwillingness to cope with student differences in general classrooms (Algozzine &
The special education identification system contributes to the increasing number of students receiving special education and related services based upon the rationalization and mind-set that it is the only way to get a student “help” (Carter & Sugai, 1989; Chalfant & Pysh, 1989; Coles, 1987; Merrow, 1996; Sack, 1998; Schrag & Henderson, 1996; Will, 1986a, 1986b). This is particularly seen with slow learners, the disadvantaged, and those who have limited English proficiency (Algozzine et al., 1982; Bay et al., 1994; Gartner & Lipsky, 1987; Jenkins et al., 1988; Kavale, 1980; Senate Report No. 46, 1997; Will, 1986a, 1986b; Ysseldyke et al., 1994) although there has been the recent allegation that wealthy families are using special education identification systems to secure special education labels that warrant special supports and accommodations such as extra time on SATs (Weiss, 2000). Interestingly, this identification process frequently includes the exclusion of these students from test-score analyses on either district- or state-level assessments which may also drive the identification of a student as being in need of special education services (Elliott & Thurlow, 1997; Fuhman & Malen, 1991; Gartner & Lipsky, 1987; Goertz & Friedman, 1996; Lieberman, 1984; McLaughlin & Warren, 1992; Roach & Raber, 1997; Smith & O’Day, 1991).

6. **Improved assessments.** It has been suggested that the ability to identify children with disabilities has improved as a result of new developments in the

Concerns Regarding Overidentification

There is concern about the ever-increasing numbers of students identified as eligible for special education services. This has resulted in pressures at the national, state, and local levels to lower prevalence rates (Carter & Sugai, 1989; Connecticut State Department of Education, 1998c; Senate Report No. 46, 1997; Ysseldyke & Algozzine, 1983). These pressures are a major component of the restructuring of special and general education into a more unified system (Connecticut State Department of Education, 1998c; McLaughlin & Warren, 1992; Stainback & Stainback, 1984; Will, 1984).

Proponents of this restructuring argue that many students now considered disabled are not disabled at all (Gardner, 1984; Patton, 1998; Sack, 1998; Shepard et al., 1983; Will, 1984; Ysseldyke, Algozzine, Shinn, et al., 1982), or are so mildly disabled that general classroom teachers should be in a position to deal with them effectively (Algozzine et al., 1982; Chalfant et al., 1979; Connecticut State Department of Education, 1998b; Graden et al., 1983; Lieberman, 1984; Will, 1986a). Many suggest that the special education “label” has no educational relevance for most students identified as having mild disabilities who are generally not distinguishable from other low achievers (Chalfant, 1984; Chalfant & Pysh, 1989; Chalfant et al., 1979; Coles, 1987; Gardner, 1984; Gerber, 1984; Glass, 1983; Graden et al., 1983; Jenkins et al., 1988; Kauffman, 1993; Lieberman, 1984;
Reschly, 1988b; Reynolds, Wang, & Walberg, 1987; Shepard, 1987; Stainback & Stainback, 1984; Tucker, 1980; Weiner & Hume, 1987; Will, 1986a, 1986b; Ysseldyke & Algozzine, 1983; Ysseldyke, Algozzine, Shinn, et al., 1982; Ysseldyke, Algozzine, Regan, et al., 1980. Many of these students identified with mild disabilities could more accurately be described as slow learners, second-language learners, or children with mildly disruptive behaviors or high levels of absenteeism (Shepard, 1987; Shepard et al., 1983). Assistant Secretary Will (1984) wrote:

It is evident...that there are children who do not fit clearly into either the regular or special education delivery system. There is a sizeable group of children in this nation's schools today who are not being served adequately in the regular class environment, yet do not meet the federal or state requirements for being labeled "handicapped child." (p. 13)

In a later report, Will stated that it was a common conceptual fallacy that poor performance in learning can be understood solely in terms of differences in the student rather than deficiencies in the learning environment (1986b). Gerald J. Reynaud, executive director for special services for a Kansas public school district, has commented that "special education has a lot of children in it who aren't really disabled, and instead of special education, they need something special in their education" (as cited in Sack, 1998, p. i).

Yet still different levels of critique regarding overidentification are represented by those who argue that the current pattern of special education either "robs the genuinely handicapped of funds and services they need to deal with their very real problems" (Granger & Granger, 1986, p. xi) or has "reduced services to
normal school children” (Gardner, 1984, p. 13). Some argue that the mandate to provide special education to all students with disabilities is an extraordinary burden on local districts (Chaikind et al., 1993). In particular, expenditures for those students with mild learning and behavior problems are considered inappropriate given both the cost of evaluation and the expense of providing low student-teacher ratios and individualized programs (Adelman, 1989; Chalfant & Pysh, 1989; Gardner, 1984; Gartner & Lipsky, 1987; Kruger et al., 1995; Lieberman, 1984; Reschly, 1987, 1988b; Stainback & Stainback, 1984). The popular press has also been replete with material that questions the cost effectiveness of special education services and the systems inherent in the special education processes (Buckley, 1989; Frahm, 1999; Rachlin & Burke, 1989; “Reforming Special Education,” 1999; Shapiro et al., 1993).

Students labeled as having specific learning disabilities are the largest disability category for children ages 6 through 21 served under IDEA. Because of this, the learning disabilities label has been a major issue in the concern about special education prevalence. The number of students classified as learning disabled has grown 36.2% since 1977-78 (U.S. Department of Education, 1998; U.S. Department of Health, Education and Welfare, 1979). In 1996-97, a total of 2,676,299 of this country’s special education students were identified as having specific learning disabilities (U.S. Department of Education, 1998).
Issues of Validity in Evaluation and Identification

Considerable controversy exists over the efficacy of referral, assessment, evaluation, and identification practices in special education. Perhaps no other area of special education has received as much professional attention as have the procedures, policies, and practices used to justify the eventual placement of students in special education. Some professionals question the appropriateness in the excessive use of personnel, time, and materials required in this process (Lieberman, 1984; Reschly, 1987; Rockne & Weiss-Castro, 1994; Stainback & Stainback, 1984; Tucker, 1992; Weiner & Hume, 1987). Others have raised questions regarding the evaluation instruments utilized, the eligibility criteria itself, and the overall decision-making process (Algozzine & Ysseldyke, 1981; Glass, 1983; Heller et al., 1982; Lieberman, 1984; Scriven, 1983; U.S. House of Representatives, 1983; Ysseldyke, Algozzine, & Epps, 1983; Ysseldyke, Algozzine, Richey, & Graden, 1982). Leading researchers and nationally recognized experts have concluded that current evaluation, identification, and placement procedures are plagued with major conceptual, ethical, and practical problems (Gartner & Lipsky, 1987; Lieberman, 1984; Tucker, 1992; Ysseldyke, Algozzine, et al., 1983; Ysseldyke, Thurlow, et al., 1983). Critics have said that the current referral, evaluation, and special education placement process is so fraught with problems that it is “educationally indefensible” (Carter & Sugai, 1989, p. 299). Glass (1983) likens it to a mixture of “politics, science fiction, medicine, social work, administrative concerns and what not” (p. 65). Yet the research indicates that about 3 to 6% of the school-age population is
referred annually for special education services (Algozzine et al., 1983); 92% of referrals are tested and 73% of those tested are declared eligible for placement (Algozzine et al., 1982; Sevcik & Ysseldyke, 1986). Ysseldyke, Thurlow, et al. (1983) stated:

The special education decision making process is one in which a student is referred, often for vague and subjective reasons; automatically tested, often with technically inadequate devices; usually placed by a team meeting; and is the object of decisions made less on data than on subjective teacher or student variables and on inconsistent and indefensible criteria. (p. 87)

Clearly evaluation instruments, eligibility criteria, and the decision-making process play a significant role in the issue of overidentification.

**Instruments**

IDEA includes 13 different disabilities classifications, most of which are diagnosed on the basis of criteria such as measured intelligence, achievement, social behavior and adjustment, and communication and language problems. Regulations require districts to use a variety of assessment tools and strategies to gather relevant functional and development information. Districts are also required to use technically sound instruments (Individuals with Disabilities Education Act, 1997). However, many researchers and practitioners have argued that it is extremely difficult to identify specific assessment instruments and methods that consistently and appropriately distinguish students with disabilities from their non-disabled peers (Coles, 1987; Shinn, Ysseldyke, Deno, & Tindal, 1982; Ysseldyke, Algozzine, Richey, et al., 1982). Other scholars argue that although extensive assessment for use in designing instruction is “nearly universally endorsed,” traditional measures...
are "irrelevant, unreliable, and invalid" as tools for directing instruction (Reschly, 1987, p. 36). Despite the proliferation of commercial tests available to educators, many of these evaluation instruments are faulty and the resulting criteria used in classification lack reliability or validity (Coles, 1978, 1987; Connecticut State Department of Education, 1999a; Davis & Shepard, 1983; German, Johnson, & Schneider, 1985; Hammill, 1993; Moats & Lyon, 1993; Shaw, Cullen, McQuire, & Brinckerhoff, 1995; Wang et al., 1986; Ysseldyke et al., 1994).

**Eligibility Criteria**

The problem goes beyond flaws within the evaluation instruments and processes. There are also troubling issues as to the meaning of the disabilities classifications. Rules and regulations concerning eligibility criteria vary significantly from state to state (Sack, 1998). Annual reports to Congress on the implementation of IDEA provide ample data concerning large variations in the prevalence of various disabilities across the states, particularly in the areas of learning disabilities, emotional disturbance, and mental retardation (U.S. Department of Education, 1997, 1998). In other words, these variations of state identification rates make it possible for a student to be considered eligible for special education in one state, only to move across state boundaries and be reclassified or considered not eligible at all (Glass, 1983; Heller et al., 1982; Reschly, 1988a; Sack, 1998). "The current exceptional child classification system evolved gradually, haphazardly, and inconsistently. . . . In fact, the current system is probably best understood as the product of diverse forces, countervailing trends,
historical accident, and compromise among competing constituencies” (Reschly, 1988a, p. 37).

Originally, children with learning disabilities were considered members of a relatively small and well-defined population; however, as schools began to use the term “learning disabled” to identify a larger number of children, the lines that separated children with learning disabilities from other groups were frequently difficult to discern. This caused confusion and inconsistency in application of eligibility criteria (Coles, 1987; Heller et al., 1982). Variation among states in the prevalence of children ages 6-21 with learning disabilities, for example, ranged from a low of 2.37% to a high of 7.06% of the estimated resident population during 1996-97 (U.S. Department of Education, 1998). Researchers have determined that rules and regulations are not very precise across states (Adelman, 1989; Coles, 1987; Epps, Ysseldyke, & Algozzine, 1982; Gerber, 1984; Mercer, Hughes, & Mercer, 1985; Perlmutter & Parus, 1983; Reschly, 1988b; Sack, 1998; Thurlow, Ysseldyke, & Casey, 1984; Wang et al., 1986; Ysseldyke, Thurlow, et al., 1983) so it is not surprising that considerable variation exists in how learning disabilities are determined.

Leading and recognized authorities within the learning disabilities field itself have expressed concerns about the lack of a universally endorsed definition and the difficulties caused for practitioners by the vagueness of those definitions that do exist (Kavale & Forness, 1999; Keogh, Major-Kingsley, Omori-Gordon, & Reid, 1982; Moats & Lyon, 1993; Ross, 1980; Shepard & Smith, 1983; Shepard et al.,

This lack of a universally accepted definition for learning disabilities and the imprecision of existing definitions have led scholars to conclude that students with mild disabilities, particularly students with learning disabilities, are “just about any students someone wishes to diagnose as such” (Reschly, 1988a, p. 36). Ysseldyke, Algozzine, Shinn, et al. (1982) found that more than 80% of the total student population could be classified as learning disabled by one or more definitions in use around the nation. Ysseldyke and his colleagues questioned the ability of professionals to distinguish between students with learning disabilities and low achieving students.

Based upon the records of those already certified as learning disabled and those not, Davis and Shepard (1983) and Shepard et al. (1983) supported the work of Ysseldyke and his colleagues by finding that experienced evaluators could not tell the difference between the two populations. Their findings substantiated earlier findings (Sherry, 1982; Warner, Shumaker, Alley, & Deshler, 1980; Ysseldyke, Algozzine, et al., 1983; Ysseldyke, Algozzine, Regan, et al., 1980; Ysseldyke, Algozzine, Shinn, et al., 1982) that students identified as learning disabled cannot be shown to differ from other low achievers with regard to a wide variety of school-related characteristics. According to Dr. Ralph Scott, Director of the Educational
Clinic and Professor of Educational Psychology at the University of Northern Iowa, "Most school psychologists and special education personnel don't know what they're talking about when they talk about learning disabled children" (Gardner, 1984, p. 14).

Similar variation across the states also occurs in the area of mental retardation, for which the lowest rate is 0.28% and the highest rate is 2.4% (U.S. Department of Education, 1998). There are about 8 times as many students ages 6-21 identified with mental retardation in the highest prevalence state as compared to the lowest prevalence state. These variations are related, at least in part, to the trend of expanding numbers of students classified as learning disabled and diminishing numbers of students classified as mentally retarded (Gerber, 1984; Heller et al., 1982; Patrick & Reschly, 1982; Reschly, 1988a). The lack of specificity in the law, particularly regarding the operationalization of the adaptive behavior dimension of mental retardation (MacMillan, 1982), is also attributed with contributing to widely varying state and local practices regarding mental retardation classification (Bickel, 1982; Patrick & Reschly, 1982; Weiner & Hume, 1987).

Other disabilities areas in special education law also have definitional problems. The category of emotional disturbance, for example, has been plagued for years by debates of definitions (Kauffman, 1993). Even categories that one would think would be easily defined because of their physiological base, such as visual impairment, have definitions that leave room for considerable interpretation (Hallahan & Kauffman, 1977).
Decision-making Process

“Tightening” eligibility criteria has been a strategy undertaken by various SEAs. The main effect of such revision is that local districts appear to either redirect referred students into other categorical services or programs, or they disguise as disabled the portion of students for whom technical eligibility cannot be demonstrated (Gerber, 1984). This leads to questions regarding the decision-making role of the multidisciplinary team. The expectation that team decision making provides greater accuracy in assessment, eligibility, identification, and placement decisions appears in part unfounded. The quality of the decision making in the evaluation and placement process has been addressed frequently in the professional literature (Fleming & Fleming, 1983; Goldbaum & Rucker, 1977; Horvath, 1978; Morrow, Powell, & Ely, 1976; Pfeiffer, 1981; Reynolds et al., 1987; Sack, 1998; Shepard & Smith, 1981; Shinn et al., 1982; Tucker, 1980; Vautour, 1976; White & Calhoun, 1987; Yoshida, Fenton, Maxwell, & Kaufman, 1978; Ysseldyke, Algozzine, Richey, et al., 1982; Ysseldyke, Thurlow, et al., 1983).

Test selection, assessment results/findings, and eligibility determination are all dependent on the knowledge, skills, and ethical/moral principles of the decision-makers. Sarason and Doris (1979) emphasized that it is not only the characteristics of the student that leads to the assessment process but the interaction between the student’s characteristics and the characteristics of the professional involved.

Algozzine and Ysseldyke (1981) found that many of the decision-makers on placement teams would declare normal students eligible for special education
services. They asked 224 school personnel to examine 16 children and make eligibility and placement determinations. Half (51%) of these professionals recommended special services despite the fact that psychoeducational data for these students were within normal limits. Further, Ysseldyke, Algozzine, Richey, et al. (1982) found little relationship between assessment data presented at placement meetings and the decision reached by the placement team members. Studies by others have found similar results, essentially no connection between the assessment data utilized and the decision reached by the team (Shepard & Smith, 1981; White & Calhoun, 1987). Numerous studies have reported that when test results utilizing existing criteria do not produce the desired outcome, individual evaluators and/or the IEP team “change the yardstick” (White & Calhoun, 1987, p. 372). If the test scores indicate the child is ineligible, but the teacher or the team really feels the child needs help, the team may select other tests that might make the child eligible. The tests then become “a means of corroborating referral decisions” (White & Calhoun, 1987, p. 372). Testing, therefore, does not drive decisions but is driven by decisions.

In summary, there is concern over the efficacy of referral, assessment, evaluation, and identification practices in special education. Procedures, policies, and practices used to justify the eventual placement of students in special education have received extensive professional attention. Leading researchers and nationally recognized experts have concluded that current evaluation, identification, and placement procedures are plagued with major conceptual, ethical, and practical

Questions Regarding the Quality of Instruction

In addition to the issues of assessment and identification, a second major theme has dominated most discussions of special education: the questionable quality of instruction. It includes two key aspects: (1) the lack of connection between assessment and evaluation findings/recommendations with the resulting instructional program, and (2) the overall efficacy of instruction provided in special education programs.

Connection to Assessment and Evaluation

The assessment and evaluation process utilized to determine whether a referred student is eligible for special education services is expensive, time-intensive, and involves numerous personnel from multiple disciplines (Ysseldyke, Algozzine, Richey, et al., 1982). It is nearly universally endorsed that the results of any assessment process should be used for designing instruction/intervention and not solely as the tool utilized for determining eligibility, placement, or achievement levels (Berninger & Abbott, 1994; Darling-Hammond, Ancess, & Falk, 1995; Ellis

Rosenfield (1987) has argued for the replacement of assessment activities with instructional consultation. She states that with instructional consultation, the focus is on the instructional mismatch between “an often vulnerable child, inadequate instruction, and a muddled conception of the task. . . . Assessment is not for the purpose of classification, but for classroom instructional decision making” (p. 6).

When Congress reauthorized IDEA with the 1997 amendments, changes to the evaluation provisions included codification of the policy that assessment tools and strategies provide information that is instructionally useful (U.S. Department of Education, 1998). Numerous researchers, scholars, and practitioners had previously questioned the relevance of much of the assessment and evaluation information to instruction or intervention (Coles, 1987; Connecticut State Department of Education, 1998c; Gable, Hendrickson, Shores, & Young, 1983; Graden et al., 1983; Heller et al., 1982; Morrison, White, & Fever, 1996; Patton, 1998; Potter, Ysseldyke, Regan, & Algozzine, 1983; Reschly, 1989, 1996; Rockne & Weiss-Castro, 1994; Salvia &
Ysseldyke, 1988; Stainback & Stainback, 1984; Thurlow & Ysseldyke, 1982; Tucker, 1980; Ysseldyke, Algozzine, Richey, et al., 1982; Ysseldyke, Thurlow, et al., 1983). In fact, the research has found that the type of instruction provided in special education is often determined by the types of classes, curriculum materials, and resources available, not by the assessed needs of the child (Heller et al., 1982; Maggs & White, 1982; Stearns, Greene, & David, 1979; Tucker, 1992; Ysseldyke, Thurlow, et al., 1983; Zigmond & Miller, 1986).

For example, Ysseldyke, Thurlow, et al. (1983) found that students referred for academic problems were more likely to receive behavioral interventions than any other type of intervention. Haynes and Jenkins (1986) conducted a large-scale study of reading instruction in resource room programs and found considerable variability in the reading instruction that was not linked systematically to students' assessments and little relationship between the instructional process and student achievement.

Overall, teachers are left dissatisfied with assessment results from special education assessment and evaluation because the results do not yield practical suggestions for instruction in the classroom (Christenson, Ysseldyke, & Algozzine, 1982; Graden et al., 1983; Thurlow & Ysseldyke, 1982; Ysseldyke, Algozzine, Richey, et al., 1982; Ysseldyke, Thurlow, et al., 1983).

Special Education Program Efficacy

Special education programs have always been suspect because of a lack of evidence indicating that these services have improved the achievement of students.
receiving them (Dunn, 1968; Glass, 1983; Merrow, 1996; Olsen, 1979; Reschly, 1988a; Semmel, Gerber, & MacMillan, 1994). Evaluation of special education has historically addressed such issues as staff qualifications, accessibility of facilities, parental involvement, participation with nondisabled peers, and other types of "input" questions (Olsen, 1994). There is a growing dissatisfaction with the limited information provided through "input" and "process" evaluation and an increasing interest in outcomes (Borich & Nance, 1987; George, George, & Grosenick, 1990; Merrow, 1996; National Council on Disability, 1989; Olsen, 1994; Tucker, 1992; U.S. Department of Education, 1998; Vogelsberg, 1994; Ysseldyke et al., 1992).

Despite the huge amounts of money spent on special education programs, students placed in them often become "lifers" allegedly because of the quality of the instruction they receive and the lack of accountability on how much, or if, they are learning (Mamlin & Harris, 1998; Meredith & Underwood, 1995; Merrow, 1996; Ysseldyke, Thurlow, et al., 1983). Special education is accused of fragmenting administrative structures, services, and the curriculum while failing to coordinate teaching and learning with regular education, which may actually impede student progress (Connecticut State Department of Education, 1998c, 1999a; Haynes & Jenkins, 1986; Jenkins et al., 1988; Lieberman, 1986; McLaughlin & Warren, 1992; Merrow, 1996; S. Rep. No. 46, 1997; U. S. Department of Education, 1997, 1998). Reynolds and Wang (1983) characterized this fragmentation as "disjointed incrementalism" (p. 190), the introduction of categorical programs, each created at a different time and emphasizing the needs of a specific target group, rather than the
pursuit of a comprehensive program that addresses the needs of all students experiencing learning difficulties. Substantial evidence indicates that students receive the same instruction and/or intervention regardless of the category of disability (Reynolds & Lakin, 1987) and that programs for students with mild disabilities and low-achieving students are highly similar in terms of the intervention methodology used (Reschly, 1996; Ysseldyke, Algozzine, Richey, et al., 1982). After an examination of research on the effectiveness of special education interventions, Kavale and Forness (1999) concluded that the "quantitative syntheses presented do not paint an optimistic picture about their efficacy" (p. 61).

In a report for the National Research Council on the placement of children in special education, Heller et al. (1982) outlined a number of principles regarding the responsibility of the placement team. Two of those principles are as follows:

- It is the responsibility of the placement team that labels and places a child in a special program to demonstrate that any differential label used is related to a distinctive prescription for educational practices and that these practices are likely to lead to improved outcomes not achievable in the regular classroom. . . . It is the responsibility of special education and evaluation staff to demonstrate systematically that high-quality, effective special instruction is being provided and that the goals of the special education program could not be achieved as effectively within the regular classroom. (p. 94)

effectiveness for a majority of practices that were developed to define the nature of special education (Kavale & Forness, 1999; Merrow, 1996). In some studies, the evidence indicates that for some interventions in special education efficacy appears unequivocal while others reveal some promise (Forness, Kavale, Blum, & Lloyd, 1997). The weight of evidence, however, clearly points to a group of instructional practices that benefit all children as special education fails to improve the educational functioning of eligible children (Slavin, Karweit, & Madden, 1989).

The academic achievement of children in special classes has been found to be lower than the achievement of children with disabilities remaining in regular classrooms. One very early study (Goldstein, Moss, & Jordan, 1965) randomly assigned students with borderline IQ scores (80-85) to either self-contained special education classes with carefully designed curricula and specially trained teachers or to regular classrooms. The children were tested periodically during the following 4 years using a variety of achievement and social adjustment measures. At the end of the 4 years, the children in regular classrooms had slightly higher reading, arithmetic, and basic social information achievement test scores than did the equivalent group in the special education program.

A meta-analysis (Carlberg & Kavale, 1980) of over 50 studies on the comparative effects of special education placement versus regular education classes produced some unsettling findings: the pupils retained in regular classrooms outscored those placed in special education classrooms. The effect of approximately 2 years of special class placement was to reduce the achievement and social
development of the students in the special class by five percentile ranks. Thus, special class students were slightly worse off than if they had remained in regular classes. Although only slightly less efficacious than regular class placement, special education class was an inferior alternative to regular class. Special education placement and instruction produced no tangible benefits. A recent review of this meta-analysis concluded that the "question of place remains unanswered conclusively" (Kavale & Forness, 1999, p. 66).

Research by Madden and Slavin (1983) comparing students with mild disabilities in special education to similar students in regular classrooms found few if any benefits warranting the extra expense of special education. Wang and Baker (1985-86) performed a meta-analysis on studies examining the efficacy of "mainstreaming," defined as placements in settings other than the special class. The analysis included 52 studies of over 3,400 students across Grades K-12 and across disability categories. These researchers concluded that there was a positive, albeit small, effect favoring mainstreamed settings; students with disabilities in integrated programs outperformed students with disabilities in self-contained special education programs. The students with disabilities in integrated programs, however, performed lower than their nondisabled peers.

Marston and Magnusson (1985) reported that Chapter I students' average learning slopes in reading were significantly steeper than those of their special education peers. Chapter I students increased their correct word reading by 2.8 words per week on average whereas special education students increased by 1.7
words per week. O’Shea and Vacante (1986) longitudinally studied students with learning disabilities and low achievers using standardized achievement tests. Low achievers made significantly greater gains than those of their peers with learning disabilities in math and language. Gains in reading were not significantly different for the two groups, but favored the low achievers. Coupled with the research cited earlier that identified the extreme difficulty in distinguishing students with mild disabilities from their non-disabled peers (Coles, 1987; Davis & Shepard, 1983; Jenkins et al., 1988; Shinn et al., 1982; Ysseldyke, Algozzine, Shinn, et al., 1982), the work of these research teams raises questions about the instructional efficacy of special education for students with learning disabilities.

Haynes and Jenkins (1986) found that students with disabilities sent to special education resource rooms for reading instruction spent 52% of the time in private seatwork. Only 25% of the total time in the resource room was actually used for reading. They conducted a large field study of reading instruction in special education resource rooms for fourth-, fifth-, and sixth-grade students with mild disabilities. Observations were made during reading instruction. Observations were also made in regular classrooms for a subset of students with disabilities and their non-disabled peers. The results outlined by Haynes and Jenkins (1986) do not positively document the effectiveness of special education when coupled with a study by Leinhardt, Zigmond, and Cooley (1981) of learning disabilities classrooms. Leinhardt et al. (1981) found that the amount of time students spent in direct
reading activities (silent reading or receiving reading instruction) was predictive of reading achievement.

Jenkins et al. (1988) examined three facts of instructional validity underlying the concept of separate service delivery systems for low-achieving students and special education students. On each facet-instructional level, learning rate, and need for a particular instructional methodology, the overlap of low-achieving students and students with learning disabilities overrode any differences in group averages. They concluded that an instructional rationale does not support a continuation of separate systems for low-achieving students and students with learning disabilities, and that a unified program would be more instructionally valid. Teachers could combine classes for students with learning disabilities and students who are low-achieving. The current educational policy conflicts with principles of effective instruction.

There has also been an increasing interest in the long-term outcomes of students who have received special education services: What happens to students after they leave the public school system? Do they find jobs or enter some type of postsecondary program? Have specialized programs and services through special education been effective? Beginning in the mid-80s, researchers attempted to answer these questions through follow-up studies. The results were largely disappointing: high dropout rates, low employment rates, and social isolation. McLaughlin (1993) stated that these findings suggested that the special education services received by students had not been effective.
Hasazi, Gordon, and Roe (1985) examined the factors associated with the employment status of students with disabilities who had been receiving special education. Results indicated that only half the students included in the study were employed. Mithaug, Horiuchi, and Fanning (1985) also did a follow-up study of graduates of special education services. Two-thirds (69%) of the respondents to a survey reported that they were working. Excluding part-time work from these figures, however, dropped the rate significantly. Respondents reported their earnings were at or below minimum wage.

Information from the National Longitudinal Transition Study (NLTS) also demonstrated that the overall results for students with disabilities are less than satisfactory (SRI International, 1993). Major findings from this study included:

1. A disproportionate number of students with disabilities dropped out of school. While 24% of the general population dropped out of school, about 38% of students with disabilities dropped out. These rates were especially high for students with serious emotional disturbances, learning disabilities, mental retardation, and other health impairments.

2. Very few students with disabilities move into postsecondary education. Fewer than one-third had gone on to postsecondary programs. This was less than half the rate for the general population.

3. Forty-six percent of the students with disabilities were competitively employed within 2 years of graduation, while 69% of the general population had gained competitive employment.
Clearly the results for students with disabilities were unacceptable.

In summary, although some generalizations about the efficacy of special education can be made, any conclusions must remain tentative. Research findings "demonstrate clearly that no claim can be made for any special education intervention having provided either the solution or the answer" (Kavale & Forness, 1999, p. 63).

**Issues of Racial Ethnic Bias**

A third major line of inquiry concerns the disproportionate numbers of minority students in special education: Is the disproportion due to racially/ethnically biased assessment or decision-making? For many educators this is an even more troubling question than the previous two issues of assessment/identification and quality of instruction regarding their implications on special education prevalence rates. Dunn (1968) initially called attention to the disproportionate numbers of minority students placed in segregated classrooms. Despite litigation, the enactment of legislation, including legislation which mandates cultural and linguistic considerations in determining eligibility for special education, and the creation of culturally sensitive assessment practices and service delivery models, many of the problems Dunn identified in 1968 are still problems today (Grossman, 1998; "Reforming Special Education," 1999; Rockne & Weiss-Castro, 1994; Sack, 1998; Serna & Nielsen, 1998). Although less overt than in the past, subtle and insidious forms of racism may still harm students of minority backgrounds (Derman-Sparks & Philips, 1997; Grossman, 1998; Parks, 1999;

In the recent reauthorization of the Individuals with Disabilities Education Act (1997), Congress expressed concern about the disproportionate representation of racial and ethnic minorities in special education. In reauthorizing IDEA, Congress found that between 1980 and 1990, the rate of increase in the number of White Americans was 6%. But Congress found that Hispanic Americans had increased by 53%, African Americans by 13.2%, and Asian Americans by 107.8% (U.S. Department of Education, 1998).

Congress indicated that greater efforts were needed to "prevent the intensification of problems connected with mislabeling . . . among minority students" (Section 601[c][8][A]). IDEA notes "although African Americans represent 16 percent of elementary and secondary enrollments, they constitute 21 percent of total enrollments in special education" (Section 601[c][8][D]).

The apparent disproportionate number of minority students in certain special education categories contributes substantive support for the accusation of discrimination (Artiles & Trent, 1994; Foster, 1986; Gartner & Lipsky, 1987; Grossman, 1998; Hilliard, 1995; Patton, 1998; Reynolds et al., 1987; Scheurich & Young, 1997; Tucker, 1980; Weinstein, 1992). Students who behave, look, speak, and learn differently are at risk of misindentification (Gersten, Brengelman, & Jimenez, 1994; Grossman, 1998; Hamayan & Damico, 1991; Hilliard, 1995; Obiakor, 1999; Obiakor & Utley, 1998; Samuda & Lewis, 1992; Ysseldyke,
Algozzine, & Allen, 1981). Others argue that racial imbalance per se is not a problem; unequal numbers do not by themselves constitute a problem. Rather, disproportion signals that certain underlying conditions may be the problem, such as low-quality instruction, low socioeconomic status, or other factors in the students' school experience. Simplistic solutions to disproportion fail to focus on the needs of the children or on the services that should be provided in both the regular classroom and special education classroom (Haigh & Malever, 1993/94; Heller et al., 1982; MacMillan & Hendrick, 1993; Reschly, 1988a; Sack, 1998; Serna & Nielsen, 1998; U.S. Department of Education, 1998).

Either way, the responsibility for problems associated with minority children does not rest with the children. Responsibility for these students must rest with teachers, the schools, and the school systems. Education must address lack of cultural competence, low expectations, and the provision of sub-standard instruction in educating students from diverse backgrounds (ASCD Advisory Panel on Improving Student Achievement, 1995; Cardenas, 1995; Cummins, 1984; Fletcher & Cardona-Morales, 1990; Gilbert & Gay, 1985; Obiakor, 1999; Obiakor & Schwenn, 1995, 1996).

Hamayan and Damico (1991) attributed inappropriate assessment and placement to the lack of knowledge among the professionals assessing students from diverse backgrounds, particularly Hispanic students. They stated that these professionals are frequently unaware of the special characteristics minority students bring to the testing situation; they are unaware of the normal process of second
language development and of the limitations of many test instruments when assessing Hispanic students. They also concluded that traditional evaluation procedures result in little useful information due to the inherent bias within the methods themselves. These inherent biases as noted by many researchers and practitioners arise from:

1. inadequate representation of language minority children in the test-item selection population, which results in questions that are biased culturally, experientially, and linguistically (Figueroa, 1989; Lacelle-Peterson & Rivera, 1994; Maheady, 1985; Schiff-Myers, Djukic, Lawler-McGovern, & Perez, 1994)

2. insufficient representation of minority students when norming the instrument (Cervantes, 1976; Lacelle-Peterson & Rivera, 1994; Maheady, 1985; Sattler, 1988)

3. problems during administration of the test; for example, a lack of test sophistication on the part of the examinees and the ethnicity of the examiner (Bernal, 1977; Cummins, 1984; Duffy, Salvia, Tucker, & Ysseldyke, 1981; Patton, 1998; Sattler, 1988)


Findings from research are mixed on the specific issue that referral and placement decisions are ethnically/racially biased. For example, Zucker and colleagues (Prieto & Zucker, 1981; Zucker & Prieto, 1977; Zucker, Prieto, &
Rutherford, 1979) described hypothetical children and then manipulated their ethnicity. When children were described as Black or Hispanic, they were more often judged as appropriate for special education placement than when they were described as White. A study by Shinn, Tindal, and Spira (1987) also concluded that racial biases could not be discounted as plausible explanations for referral.

Cummins (1984) reviewed the referral forms and psychological assessments of over 400 language minority students. His review indicated that educators reported the children's English communicative skills as considerably better than their academic language skills. Thus the conclusion arrived at by many assessment personnel is that the poor academic performance is not attributed to a lack of English proficiency. The students were assumed to have either deficient cognitive abilities or poor motivation.

In contrast, a study by Tobias, Zibrin, and Menell (1983) found no ethnic differences in terms of referral recommendations. Bahr and colleagues (Bahr, Fuchs, Stecker, & Fuchs, 1991) presented evidence that teachers have a rational basis for identifying more Black children as appropriate for referral due to the poorer academic achievement of Black students. These studies were supported by the work of Del'Homme et al. (1996) who found that ethnicity of referrals was within expected limits for the student population. They found no significant ethnic differences for type of referral problem. MacMillan, Gresham, Lopez, and Bocian (1996) suggested that teachers may not only be reticent to refer minority children for special education evaluation, but also may refer only those minority children
whose academic problems were much more severe than those of White children who are referred for special education evaluation.

In summary, the disproportionate number of minority students in special education continues to concern educators and policymakers despite litigation, the enactment of legislation, and the creation of culturally sensitive assessment practices and service delivery models to address the problem. The overidentification of minority students contributes to increasing special education prevalence rates and requires attention.

**Solution: Prereferral Intervention**

Prereferral intervention strategies/procedures have been implemented in many schools across the country as one systemic solution to concerns about increasing special education prevalence rates and the automaticity of eligibility inherent in the “refer-test-place” sequence, an unintended outcome of the implementation of the special education law (Schrag & Henderson, 1996). Prereferral efforts, including building-based, problem-solving teacher teams, are being undertaken to provide immediate assistance to classroom teachers in addressing the academic, behavioral, and/or social difficulties of students. These prereferral interventions are seen as an alternative to referring students for evaluation for special education eligibility as students' academic or behavioral or social difficulties are ameliorated as they occur in the general education classroom. The objectives for prereferral intervention include: (1) to preclude inappropriate referral to and identification of students for special education, particularly those
students who demonstrate academic, behavioral, and/or social needs that can be met in the general education classroom; (2) to identify teaching strategies that are effective in the classroom; and (3) to enhance the skills of teachers with respect to meeting the instructional needs of increasingly diverse groups of students.

Prereferral intervention is an approach currently supported by a majority of State Education Agencies (SEAs) (Carter & Sugai, 1989; Wood et al., 1990), and it is a common component of SEA policy and procedures (Schrag & Henderson, 1996). It can be broadly defined as a systematic effort to assist classroom teachers in the education of students experiencing difficulty in school (Pugach & Johnson, 1989). It represents a trend toward increasing the use of more indirect services and the integration and collaboration of general and special education (Graden, 1989; Kruger et al., 1995; Schrag & Henderson, 1996).

There are many models of prereferral intervention. These models are identified by an assortment of names (e.g., teacher assistance teams, prereferral intervention teams, student assistance teams), but all of the models involve having educators work collaboratively to develop, implement, and evaluate instruction and/or classroom management as conducted in the general education classroom. Thus, these models are generally preventive, problem-solving-oriented processes designed to provide indirect services to students and to reduce the need for special education services. Unfortunately, there is a limited amount of research dedicated to the question of the impact of these models on special education prevalence rates (Bay et al., 1994; Cosden & Semmel, 1992; Ivarie & Russell, 1992; Kruger et al., ...
Rather, studies and investigations have looked at issues that impact referral rates to special education and teacher satisfaction (Bay et al., 1994; Beck, 1993; Buchholz & Pruitt, 1986; Chalfant & Pysh, 1989; Chalfant et al., 1979; Cosden & Semmel, 1992; Fuchs, Fuchs, & Bahr, 1990; Harrington & Gibson, 1986; Harris, 1995; Hayek, 1987; Ivarie & Russell, 1992; Kovaleski et al., 1995; Kruger et al., 1995; Nelson et al., 1992; Ponti et al., 1988; Singer, 1993; Whitten & Dieker, 1995). A chronological look at the findings follows.

Chalfant et al. (1979) introduced the term Teacher Assistance Team (TAT). It was defined as a school-based, problem-solving team through which teachers get help from other teachers regarding children who are difficult to teach or manage. They were created to function as day-to-day problem-solving groups for teachers. The ultimate goal of TATs was to enable teachers to meet the needs of difficult-to-teach students in regular classrooms (Chalfant & Pysh, 1989; Chalfant et al., 1979). Studies completed between 1979 and 1988 found that TATs reduced the total number of students referred to special education. Teachers felt that the teams helped to analyze and understand student behavior and to generate intervention strategies. The teams were reported to improve teacher morale, facilitate faculty communication, and expedite the referral process. Effectiveness of the school-based teams was attributed to three factors: principal support, teacher support, and the professional and interpersonal skills of team members. When any of these factors was missing, members perceived teams as ineffective.
Graden, Casey, and Christenson (1985) were the first to use the term *prereferral intervention* in the literature in response to the growing concern regarding overidentification of students with mild disabilities in the early 1980s. Their investigation on the use of prereferral intervention in schools demonstrated a 66% decrease in the number of students tested and a 73% decrease in the number of students placed in special education. This study also supported the importance of administrative support for the prereferral process.

The utilization of a prereferral model effectively reduced special education costs in a study reported by Buchholz and Pruitt (1986). After using the approach for 3 school years, there was a reduction of almost 50% in special education referrals.

Harrington and Gibson (1986) reported on a survey designed to determine teacher satisfaction with assistance provided by prereferral intervention teams. The survey revealed that most teachers were satisfied with the team and indicated that the team understood the referring problem. It is interesting to note, however, that some respondents (34%) also suggested that the initial intervention recommendation from the team was only marginally successful in correcting the student problem. Hayek (1987) also investigated teacher perceptions of teacher assistance teams and found that a majority of teachers believed that these teams meet the needs of problem learners. Teachers also suggested that they would refer more students to special education if these prereferral teams were not available.
A 5-year study conducted by Ponti et al. (1988) evaluated the effectiveness of a prereferral process in the final 2 years of the project. Their primary objective was to determine the extent to which the new prereferral model broadened the range of services provided to students. They discovered that not only had the range of services changed, but the work of the teachers within that system had changed as well.

Pugach and Johnson (1989) implemented a school-based, problem-solving model that taught teachers to assist each other in rethinking classroom problems, generating solutions, and evaluating the impact of these solutions. Using a control group and an experimental group, data indicated that teachers who engaged in prereferral collaboration were more tolerant of the cognitive functioning of children, solved 86% of the problems identified, and changed 91% of their problem descriptions, shifting from a student-centered problem orientation to a teacher-centered orientation.

In a study done by Fuchs, Fuchs, and Bahr (1990), an experimental group referred 21% of the students presented to a prereferral group while a control group had a 50% referral rate. They also reported that the Mainstream Assistance Team (MAT) approach resulted in teachers viewing problems as less severe and a dramatic reduction in student behavior problems as a result of assistance from MATs. The difficult-to-teach students were less likely to be referred to special education than students in control groups with no MAT and the teachers had become more tolerant and capable in meeting their needs.
Brown et al. (1991) reported on a study designed to identify strategies commonly associated with prereferral intervention. The most frequently reported strategy across all grade levels was consultation with other professionals through either school-based teams or with an outside consultant. Teachers were willing to collaborate in efforts to assist students, and this willingness with which teachers approach collaboration should be utilized to a much greater extent.

A study by Sargent in 1992 collected data related to referrals, evaluations, and placements. Project schools were compared with control schools. Project schools averaged 11 referrals compared to an average of 20 referrals in the control schools. Placements in special education revealed a similar relationship. Project schools placed fewer students in special education (an average of 9) than the control schools (an average of 13).

Ivarie and Russell (1992) collected data on referral and placement of students from 20 teams over a 2-year period. The data indicated that teams trained in collaborative consultation can increase "verifiable" referrals, that is, referrals considered appropriate referrals. Prior to implementation of the team process, verifiable referrals were as low as 17%. After use of the team process, schools maintained a consistent 86% of verifiable referrals. Data also demonstrated an increase in positive attitude toward prereferral teams by faculty.

Rosenfield (1992) developed Instructional Consultation (IC) Teams described as interdisciplinary, instructional school support teams. The use of the IC Team was meant to result in a systemic referral process involving a conceptual and
behavioral shift from finding student deficits to a restructuring of the setting so students might achieve. Post-implementation special education referral rates were reported to range from 11.6% to 17.5% in participant districts while specific pilot IC Team schools reported a range of 0% to 1.7%. In one pilot school, a total of 73% of special education referrals were placed in special education prior to implementation. In the fourth year of IC Team implementation, only 6% of special education referrals were placed in special education in that school. The study found that as schools adopted and utilized the teams in subsequent years, the number of team referrals for consultation services increased significantly while requests for special education assessment decreased. Further, the majority of those students who were considered to be in need of special education referral and assessment were found to be eligible for special education services, indicating more appropriate referrals. Rosenfield concluded that program development resulting in service delivery system change requires an extended period of time. She also stated that school psychologists must move from their traditional “testing” roles to active participation in prereferral team consultation.

Cosden and Semmel (1992) studied Teacher Assistance Teams (TATs), school-based problem solving teams which assisted teachers with difficult-to-teach students. The primary goal of the TATs was to use group resources in order to develop alternative instructional strategies and support teachers in developing and implementing interventions. An empirical evaluation indicated that the number of referrals to special education decreased with TAT use and the numbers of more
appropriate referrals to special education increased. TATs were successful in meeting student behavioral and learning needs. They also reported general changes in teacher attitudes, tolerance, and skills as a result of TAT implementation.

Nelson et al. (1992) studied the satisfaction of special education administrators with school-level intervention teams. They found that most administrators surveyed believed that prereferral intervention maintains students in regular education classrooms, thus resulting in fewer referrals for special education services. The strategies implemented under the prereferral process more often than not produce the desired change in student learning or behavior. The prereferral intervention process increased the abilities of teachers to educate students who are experiencing difficulty and improved teachers’ attitudes toward these students. These same researchers also found that administrators thought that the prereferral process created bureaucratic hurdles.

Beck (1993) found a 56% reduction in students referred to special education during post-implementation of Project RIDE. Project RIDE involves the use of School Wide Assistance Teams (SWATs) to support classroom teachers who have students with learning and behavior problems. Later replications in different districts found a 45% and 33% decrease in special education referrals. Beck also reported more appropriate referrals to special education. Eighty percent of the cases referred to SWATs were successfully resolved with more appropriate students being referred to special education. Prior to implementation of Project RIDE, 54% of students referred to special education were found to be ineligible; post-Project
RIDE implementation found 20% of students referred to special education. Beck also found that teachers increased skills in resolving classroom problems without requesting outside assistance as a result of implementation of Project RIDE.

Comparing the year prior to implementation of the school-level intervention team to its initial year of use, Singer (1993) found a 36% reduction in special education student referrals. The study gathered data regarding collaborative contacts between regular education teachers and child study team members. A dramatic increase in collaborative efforts among teachers was demonstrated. Nine out of 10 referrals to the prereferral team had collaboration prior to the referral, where none had existed prior to the implementation of the team model. This study corroborated the findings of Chalfant and Pysh (1989) and Brown et al. (1991) that referrals go down after a period of teaming. Teacher skills and performances can be greatly enhanced through collaborative prereferral intervention models.

Although their study was based on a relatively small sample, Bay et al. (1994) had similar findings. Their study reported that 68.75% of at-risk children did not require/need special education services following collaborative team intervention at the prereferral level. They reported that teachers expressed satisfaction with prereferral models that assisted them in working with at-risk children.

Whitten and Dieker (1995) studied the prereferral intervention process in Illinois. Randomly selected schools confirmed that they were able to meet the needs of 59% of the students brought to the prereferral team without a referral for
special education evaluation. The composition of the teams varied depending on the needs of the teachers and students. Teams used a wide spectrum of teaching strategies and team supports. They included behavior management, individualized instruction, peer tutoring, consultation with professionals, and teacher observations.

A study by Harris (1995) focused on prereferral intervention teams developed to meet the needs of students who were non-native English speakers and who were experiencing learning problems. It was found that in the first year of implementation, development of team building and communication skills was the priority to the more technical skills of appropriate assessment or alternative instructional strategies. Only when the team learned how to function as a team was technical expertise identified as an important role.

Kruger et al. (1995) studied the relationship between organizational support and satisfaction with school-based problem-solving teams. Administrative support to the team dwarfed other organizational support factors such as social support among staff. They also concluded that staff was more likely to be satisfied with collaborative teaming efforts when they perceive that the overarching purpose of the team is to help teachers.

Kovaleski et al. (1995) also noted change in teacher attitudes, tolerance, and skills over time as prereferral intervention teams are immersed into the culture of a particular school. They noted in their examination of the implementation of Instructional Support Teams (ISTS) in Pennsylvania that the longer a school has been involved in the use of ISTs, the more frequently teachers use the process.
When school-level intervention teams operate in a building, the teachers become increasingly comfortable and competent in addressing student problems on their own and/or with assistance of the team. The ISTs were also credited with improving student achievement as indicated by the decrease in student grade retention.

Ingalls and Hammond (1996) collected data over a 5-year period in three major areas: (1) number of students referred for prereferral intervention; (2) number of students formally referred to special education; and (3) number of students qualified as eligible for services and placed in special education. The data were summarized for nine prereferral intervention teams. Only one quarter of the students who were assisted by the prereferral intervention team were referred for special education assessment. The decrease in the amount of time spent in assessing students for eligibility provided additional time to assist students in general education settings. Data supported the findings that more special education referrals, assessments, and placements occurred when prereferral intervention is not present in schools.

A study was conducted by Hartman and Fay (1996) for the Center for Special Education Finance at the American Institute for Research in the Behavioral Sciences in Palo Alto. It evaluated the cost effectiveness of Instructional Support Teams (IST) in Pennsylvania. Hartman and Fay compared IST costs to those of traditional special education programs. Costs and program results for over 1,000 schools with the IST process were compared to a subset of schools prior to IST.
implementation. The study found that the IST had similar costs to the traditional program. The significant findings, however, were that fewer students were placed in special education with the IST approach and more students with learning and behavioral problems were provided services than through the traditional program. The researchers concluded that IST had substantially higher effectiveness than the traditional program. The IST program was “able to reduce the number of students placed in special education while at the same time providing extensive and successful instructional services to many more children in regular education” (p. 32).

A doctoral study by Phipps (1998) looked at how the prereferral intervention process addresses the needs of Hispanic students experiencing difficulties in the regular classroom. It was determined that documentation procedures were not followed consistently. Although a variety of student information was presented, problems were not defined specifically. Most of the team time was spent on providing background information; little time was spent on brainstorming possible recommendations/solutions. Teachers came to the prereferral intervention team to plead their cases for additional help, in most cases, referral to special education.

Mamlin and Harris (1998) investigated teachers’ evaluations of the referral process in an elementary school where prereferral was being implemented. In most cases, teachers found the referral process successful, though not without problems and frustrations. A consistent concern from teachers was that the process took too long. The process was more likely to be perceived as successful when the teachers
prepared proper documentation before going to the meeting. The size of the school, the number and variety of resources and personnel, a willingness to use the resources, and a shared belief system all appeared to contribute to the efficacy of the prereferral process.

A synthesis of the professional literature regarding the direct and indirect impact of school-based prereferral intervention teams notes five significant findings. These findings include: (1) a change in referral rates to special education; (2) the increased appropriateness of special education referrals; (3) administrator, teacher, and team satisfaction related to assistance provided by the teams; (4) changes in attitudes, tolerance, and skills of the team, administrators, and teachers; and (5) a change in student behavior and academic performance.

These findings seem to suggest that prereferral intervention strategies and models can have positive impact on special education delivery practices. Prereferral intervention teams can increase the abilities of teachers to educate students who have learning and/or behavioral problems without referral to special education. As a result, fewer and more appropriate referrals are made to special education and other support programs. The direct impact of prereferral intervention on special education prevalence does not appear to have been thoroughly researched, however.

Connecticut's Response: The Early Intervention Project

The Connecticut Early Intervention Project (EIP) began in the 1985-86 school year as a voluntary training program designed to prevent the
misclassification of minority students as handicapped. The program was based on mutual cooperation between the local district and the Connecticut State Department of Education. The Connecticut experience at that time mirrored national trends: a rapid rise and an over-representation of minority students labeled as being in need of special education. Connecticut had growing evidence that significant numbers of children were being inappropriately classified as handicapped and placed in special education programs. More than three times the number of Black students than White students were classified as educable mentally retarded. Almost twice as many Black students as White students were labeled emotionally disturbed.

The primary goal of the project was the implementation of least biased procedures to assist school districts to avoid the misclassification of minority students. An important secondary goal was to assist school districts in the development, use, and refinement of a prereferral intervention system. This prereferral intervention system would increase the capability of general education staff and programs to more effectively educate students who were at-risk or mildly impaired. This systematic early intervention process, which was to be initiated when the regular classroom teacher first sought assistance for a student experiencing academic and/or behavioral problems, was seen as a mechanism for reducing misclassification and over-placement of minority students into special education.

In its pilot year, 12 Connecticut urban school districts participated in the training program, one elementary school from each district. Combined, these
districts comprised approximately 80% of the minority enrollment in Connecticut. Training focused on orientation to non-test based assessment; team meetings; use of assessment to formulate intervention; the use of multiple data sources to avoid misclassification; and special education referral and classification procedures.

Results from the initial year of operation suggested the need to expand the scope of the project to include more sites and more staff from the original 12 districts. A more comprehensive training program was also outlined. This second phase of training included sessions focused on least biased assessment techniques (curriculum-based assessment, observation-based assessment, and interview-based assessment), strategies for addressing behavior problems, and basic classroom consultation. Basic classroom consultation was defined as problem-solving techniques and intervention strategies in the regular classroom with the support and cooperation of classroom teachers. In addition to the training, teams also received on-site guided practice.

Implicit and inherent in the EIP was a series of interrelated changes with significant implications for service delivery models between general and special education. These changes included:

1. Moving support staff from an exclusively direct service role to a more indirect, consultative role to regular classroom teachers
2. Refocusing of an almost automatic process of referral to testing to identification and placement in special education, to an attempt to address the problem in the regular classroom
3. Modifying instructional programs and practices within the regular classroom to foster a more effective match between the student and the curriculum

4. Improving regular education staff's ability to better serve those children with mild to moderate learning and/or behavior difficulties in the regular classroom

5. Expanding data collection and assessment practices to provide more effective screening that engenders more appropriate referrals to special education and increases the achievement of non-biased assessment practices.

In summary, the project incorporated an early identification and consultation model whereby children who were experiencing learning and/or behavioral problems were referred to a non-special education building team. These teams used non-traditional, curriculum-based assessments to assist the classroom teacher to address the problems within the regular class without the need for a formal referral for special education evaluation.

After 3 years, data indicated that approximately 75% of all referrals to the EIP teams were either resolved or continued with assistance to the regular classroom teacher without the need to refer the child for special education evaluation (Douville, 1988). An inspection of minority student enrollments in special education for all participating districts revealed both a reduction in numbers of minority students identified and placement rates consistent with and representative of total minority enrollments in Connecticut public schools.

As an example, in one school, the team processed 136 referrals to EIP from regular classroom teachers. A total of 58 of those referrals, or 43%, were closed as
no further intervention by the team was needed. Another 57, or 42%, of all referrals were continued as they were in the process of being resolved. Generally the results from the pilot schools indicated that the "automaticity" of the special education referral process could be changed, resulting in greater services to children in regular education, offsetting the need to formally assess and/or label students. These results were consistent with the findings of Ysseldyke, Pianta, et al. (1983) who found that it is the emphasis on assisting teachers through instructional intervention techniques that is often lacking in the referral-to-placement process.

In 1988-89 the EIP was expanded to include one team from a suburban district and one team from a rural district. Beginning with the 1989-90 school year, the project was expanded beyond these 14 districts and refocused slightly in response to the growing need to better integrate regular and special education programs and services. The project was seen as an initiative appropriate for addressing increasing prevalence rates in urban, suburban, and rural districts. Participation was opened statewide and expanded beyond the training and technical assistance components. District superintendents and building principals were required to sign a written statement of assurance that included a commitment of support and resources for the project. Participating districts were provided with release time stipends, training of trainers opportunities in order to build local capacity, demonstration sites for observation, and an extensive evaluation component designed to assess the statewide impact. One significant "twist" was the
requirement that EIP teams be primarily comprised of regular classroom teachers. Middle school and secondary level teams were also invited to participate.

To date a total of 158 schools from 50 districts have received training through Connecticut's Early Intervention Project. In the 1997-98 school year, EIP teams reported that 3,869 children were served through EIP. It has been reported that 67% of the students achieved their goals or were continuing in EIP in anticipation of resolution; 26% of the students were referred for special education evaluation; and 7% of the cases were closed as the student had moved out of the district (Connecticut State Department of Education, 1998a).

Connecticut EIP teams assist teachers to analyze problems, collect curriculum-based and observation-based assessments, set goals, and devise strategies and interventions. The overall purpose is to support teachers in addressing student problems without removing the student from the general education classroom. A fundamental premise of EIP is the establishment of building-based teacher teams that move away from an "expert" model of problem solving to one that institutionalizes the role of classroom teachers as the "experts."

Connecticut requires school districts to develop and implement prereferral intervention: "Before a child is referred to the planning and placement team, alternative procedures and programs in regular education shall be explored and where appropriate, implemented" (Connecticut Regulations Concerning Children Requiring Special Education, 1986, p. 23). The Connecticut EIP trains districts to document the data collected on a student and the alternatives tried in the regular
classroom before a student is referred. This addresses concerns raised by Coles who concluded that teachers did not refer students for an evaluation “after a teacher had worked with a youngster and disconsolately concluded that the student was unable to learn through conventional educational means” (1987, p. 204). He concluded that teachers made referrals “without having first attempted to use any modified instructional interventions” (p. 204). Reschly (1988b) also found that although about two-thirds of school psychologists were involved with interventions before classification/placement, only about 25% of those interventions involved collection of baseline data, systematic implementation of interventions, or application of an objective measure of the intervention. In contrast to these practices, Connecticut’s prereferral intervention approach is aimed at identifying the sources of the student’s difficulties, and improving the student’s educational performance by providing modifications in instruction, curriculum, and classroom environment. Information is conceptualized as formative and is documented for further analysis of ways to intervene.

According to self-reported data for participant schools, only 26% of the total number of students served through Connecticut EIP teams have been subsequently referred to special education (Connecticut State Department of Education, 1998c). The percentage of students actually identified and placed in special education was even lower. A successful program of prereferral intervention can be expected to solve problems before they require a more intrusive and restrictive intervention, thus reducing the number of more serious instructional and management problems...
(Sindelar et al., 1992). Special education prevalence rates should change. Once school-based intervention assistance teams are operating within a particular school building, a decrease in the number of inappropriate referrals for special education services should result. One of the strengths of the intervention team model is the development of interventions for students who may otherwise be referred for special education, but who indeed do not qualify for such services. The intervention assistance team may suggest interventions and support the referring teacher to the extent necessary to address the student's problems, thus precluding the need for a formal referral for special education services.
CHAPTER III

METHODOLOGY

Overview

The primary research design consisted of a comparison of special education prevalence change rates for two groups, EIP schools and non-EIP schools. If a significant primary effect was found, additional tests between special education prevalence change rates for racial/ethnic groups and education reference groups (ERG) were planned.

Special education prevalence change rate was the dependent variable. The next section describes the calculation of this variable from extant student enrollment data.

The principle independent variable was implementation of the EIP program within a school, using the designation “EIP” school and “non-EIP” school. Additional analyses were conducted on EIP schools using two attribute independent variables: race/ethnicity and ERG. After finding the main effect, a third attribute independent variable, initial year of EIP participation, was used.

Population

Analyses were conducted at the school level. There were 864 public schools across 169 districts in Connecticut that existed during the period used in the study.
This population of schools was classified into EIP schools and non-EIP schools. Schools defined as EIP schools had participated in the training and technical assistance provided through the Connecticut Early Intervention Project (EIP) as described in Chapter II. Of the total population of schools in Connecticut, 158 were EIP schools in 50 districts and 706 were non-EIP schools in 119 districts.

**Measures**

Special education prevalence change rate was the dependent variable. This change rate was computed by subtracting the 1993-1994 special education prevalence rate from the 1997-1998 special education prevalence rate for each school building. The resultant difference showed the amount of special education prevalence change over the 4-year period.

To calculate the special education prevalence change rates, it was necessary to determine the size of the total student population and the total special education population for each school for each of the 2 school years (1993-94 and 1997-98). The Connecticut State Department of Education maintains the total student population annually as a student enrollment database by grade, gender, and race/ethnicity for each public elementary, middle, and high school. For the 1997-98 school year, Connecticut public schools reported 526,882 students.

To determine the total special education population for each school, the Department's database of students with disabilities who receive special education was analyzed by school and the attribute variables of race/ethnicity and ERG.
1997-98 school year, a total of 71,914 K-12 students were receiving special education.

The first step in computing the prevalence change rate entailed the merger of these two databases for the school years 1993-1994 and 1997-1998, the first year for which these databases were available and the most current year available, respectively. Although extant, the total student population and the special education databases have been established by two separate units within the Department. In many cases, the two databases utilized a different variable name for the same variable (e.g., schbldg vs. bldg) and a different variable format for the same variable (e.g., numeric vs. string). Data had also been coded differently, requiring clarification and modification. These two databases were converted to a common layout and merged for use in this research. The resulting merged file was a school-level database with the following variables: year, ERG, total enrollment by gender and race/ethnicity, and special education enrollment by gender and race/ethnicity.

Special education prevalence for each school was the percentage of the school-age population with disabilities who receive special education. The numerator was obtained from the database of students with disabilities who receive special education compiled by the Connecticut State Department of Education for the 1993-1994 and the 1997-1998 school years. The denominator was obtained from the Department's student enrollment database for the same years. The
resultant prevalence rate was a continuous variable. Both the special education file and the total student enrollment file contained race/ethnicity, gender, and ERG.

The principal independent measure was participation in the EIP by a school, using the designations "EIP" school and "non-EIP" school. Additional analyses were also conducted using three attribute independent variables: race/ethnicity, ERG, and initial year of EIP participation. These measures were categorical.

Racial/ethnic categories used in Connecticut are White, Black, Hispanic, Asian, Indian, and Other. The low number of students in some Connecticut schools in the Asian, Indian, or Other categories warranted the decision to exclude these groups from the racial/ethnic analysis. This is in keeping with the research convention of 20 or more subjects in a "cell" or group (Kraemer & Thiemann, 1987).

To assist in reporting and analyzing school district data, the Connecticut State Department of Education developed Education Reference Groups (ERG). This is a classification system designed to compare groups of districts that have similar characteristics. The state's public school districts have been divided into nine groups based on socioeconomic status, indicators of need, and enrollment. ERG A consists of 12 affluent suburbs with an average income, education level, and percentage of parents in professional occupations significantly higher than any other group. ERG B consists of 19 districts with the second-highest income and other socioeconomic attributes. ERGs C through I include districts with successively
lower socioeconomic indicators. ERG I includes 7 districts with the lowest socioeconomic indicators. ERG is an ordinal variable.

Initial year of EIP participation was the third attribute variable used after finding the main effect. The year an EIP school initiated participation in the training and technical assistance provided through the Connecticut Early Intervention Project (EIP) was identified. The earliest participant schools began in the 1985-86 school year. The most recent initial year of participation was the 1997-98 school year. Initial year of EIP participation was an ordinal variable.

**Procedures Data Analysis**

To test the first null hypothesis, that there is no difference in special education prevalence change rates between EIP schools and non-EIP schools, a one-way analysis of variance was performed. The .05 level of alpha (p < .05) was used to determine significant difference.

Because equality of variance is essential for analysis of variance, the Levene Test for Equality of Variances was used. This homogeneity-of-variance test is less dependent on the assumption of normality than most tests. For each case, it computes the absolute difference between the value of that case and its cell mean and performs a one-way analysis.

The assumption of normally distributed data was examined through a preliminary plot of the distribution. Stem and leaf plots displayed patterns in keeping with normal distribution.
To test the second null hypothesis, there is no difference in special education prevalence change rates between the racial/ethnic groups in EIP schools, a one-way analysis of variance was performed. The .05 level of significance ($p < .05$) was used.

Preliminary to testing the second null hypothesis, descriptive statistics were reviewed. It was suspected that certain racial/ethnic categories would not provide a sufficient number ($N$) in some schools. The low number of students in some Connecticut schools in the Asian, American Indian, or Other categories warranted the decision to exclude these groups from the analysis. It was also determined that due to the low number of Black, Hispanic, and White students in some schools, only EIP schools with 20 or more students in each of the three racial/ethnic categories (Black, Hispanic, and White) would be included in the analysis.

The Levene Test for Equality of Variances was used because equality of variance is essential for analysis of variance. The assumption of normally distributed data was examined through a preliminary plot of the distribution. Stem and leaf plots displayed patterns reflecting normal distribution.

For the third null hypothesis, there is no difference in special education prevalence change rates between the Connecticut education reference groups (ERG), a one-way analysis of variance was performed. The .05 level of significance ($p < .05$) was used.

Again the Levene Test for Equality of Variances was used because equality of variance is essential for analysis of variance. The assumption of normally
distributed data was examined through a preliminary plot of the distribution. Stem and leaf plots displayed patterns reflecting normal distribution.

After finding the main effect, the data were more closely examined through two additional comparisons. The first was the calculation of the Spearman’s rho correlation coefficient to determine if there was a correlation between the special education prevalence change rate and the initial year of EIP participation.

To determine if the relationship between the two variables-special education prevalence change rate for EIP schools and the initial year of EIP participation for EIP schools-could reasonably be assumed to be linear, a scattergram was plotted. The assumption of linearity appeared to be met as the means of Y (the dependent variable-special education prevalence change rate) at each of the Xs (independent variable-initial year of EIP participation) were on a fairly straight line. The plot was not distinctly U-shaped or J-shaped.

The assumption of normality also appeared to have been met as the distribution on the scatterplot appeared fairly symmetrical without too many outliers. The normality assumption was not violated and did not affect the results of the analysis.

The assumption of equal variance appeared to have been met. Although the dependent values were clustered slightly more around the regression line at the upper end, the assumption of equal variance did not appear to be violated and the results of the analysis would not be affected.
The regression line fit the data well. It was appropriate to use the regression line to describe the relationship between the special education prevalence change rates and the initial year of EIP participation for EIP schools.

Another comparison involved recoding the initial year of EIP participation of EIP schools into a new variable: initial year of EIP participation by quartiles. EIP schools that initiated participation in 1985-86 through 1991-92 were in the first quartile \( (N = 45) \). EIP schools that began in 1992-93 and 1993-94 were in the second quartile \( (N = 29) \). The third quartile was composed of EIP schools where participation began in 1994-95 and 1995-96 \( (N = 56) \). The fourth quartile contained EIP schools where the project was initiated in 1996-97 or 1997-98 \( (N = 28) \). The quartile breakout for data preparation appeared to agree with an intuitive grouping of the initial year of EIP participation, and provided another framework for examining the descriptive data.

Following the quartile recoding, an additional one-way analysis of variance was performed to determine if there was a difference in special education prevalence change rates between the initial year of EIP participation quartiles in EIP schools. The .05 level of significance \( (p < .05) \) was used. The assumption of normally distributed data was examined through a preliminary plot of the distribution. Stem and leaf plots displayed normal distribution.
CHAPTER IV

RESULTS

Overview

This study was designed to answer three questions regarding the effect of prereferral intervention on special education prevalence rates. The three research questions that guided the study were:

Research Question 1. Is there a significant difference between special education prevalence change rates in EIP schools and non-EIP schools?

Research Question 2. Is there a significant difference in special education prevalence change rates between racial/ethnic groups in EIP schools?

Research Question 3. Is there a significant difference in special education prevalence change rates between the nine Connecticut education reference groups (ERG) of EIP schools?

In addition to the three research questions, after finding the main effect, analyses were conducted to investigate whether the initial year of EIP participation by EIP schools affected special education prevalence change rates.

The results have been derived from analysis of variance and Spearman's rho correlation coefficient tests, using special education prevalence change rate as the dependent variable.
After the main effect was found for Research Question 1, analyses proceeded to the second and third research questions as well as additional analyses regarding the initial year of EIP participation.

Research Question 1

Research Question 1 asked: Is there a significant difference between special education prevalence change rates in EIP schools and non-EIP schools?

To test the first research question, a total of 864 Connecticut elementary, middle, and secondary schools were included. These schools represented the entire population of public schools in Connecticut for which data existed in the two comparison years (1993-94 and 1997-98). Of this total, 158 schools had participated in Connecticut's Early Intervention Project (EIP) and were identified as EIP schools. The remaining 706 schools were identified as non-EIP schools.

The first preliminary step in analyzing the data was an examination of stem-and-leaf plots to test the assumption of normality and to determine if there were any extreme data values. The distribution of special education prevalence rates appeared "textbook normal" for each group, EIP schools and non-EIP schools, in the first year of the study. There were no extreme or outlying values.

As an additional preliminary step, the Levene Test for Equality of Variances was used to test the assumption of equal variance. The results were clearly not significant ($F = .823, p = .364$) indicating that the population variances for EIP schools and non-EIP schools can be assumed to be equal.
The third preliminary step was to calculate the special education prevalence change rates for the two groups. The EIP schools decreased .42 of a prevalence point, from a prevalence of 12.72 in 1993-94 to 12.30 in 1997-98. The non-EIP schools increased .34 of a prevalence point, from a prevalence of 12.33 in 1993-94 to 12.67 in 1997-98. Thus, the difference in special education prevalence change rates between the EIP schools and the non-EIP schools was .77 of a prevalence point.

To determine whether the mean special education prevalence change rates were significantly different between EIP schools and non-EIP schools, a one-way analysis of variance was performed. As presented in Table 1, the mean special education prevalence change rates were found to differ significantly, $F(1, 862) = 4.876$, $p < .05$.

Table 1

<table>
<thead>
<tr>
<th>Source</th>
<th>df</th>
<th>F</th>
<th>Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between Groups</td>
<td>1</td>
<td>4.876*</td>
<td>.027</td>
</tr>
<tr>
<td>Within Groups</td>
<td>862</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>863</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*p < .05.
These results indicate that there is a significant difference between special education prevalence change rates in EIP schools and non-EIP schools. Null Hypothesis 1, There is no significant difference between special education prevalence change rates in EIP schools and non-EIP schools, was rejected.

Research Question 2

Research Question 2 asked: Is there a significant difference in special education prevalence change rates between racial/ethnic groups in EIP schools.

To test the second research question, data from a total of 18 EIP schools with 20 or more Black, Hispanic, and White students were analyzed. EIP schools whose student population did not include sufficient Black, Hispanic, and White students were not included in the analysis.

The essential result was that the special education prevalence change rate for White students in EIP schools decreased .55 of a prevalence point whereas the special education prevalence change rate increased for Black students by 1.87 prevalence points, and for Hispanic students 2.74 prevalence points. To determine whether the mean special education prevalence change rates based on race/ethnicity were significantly different, a one-way analysis of variance was performed. As presented in Table 2, the mean special education prevalence change rates were not found to differ significantly, $F(2, 51) = .629, p < .05$.

The $F$ statistic indicated that the difference between the groups was not significant. Null Hypothesis 2, There is no significant difference in special
education prevalence change rates between racial/ethnic groups in EIP schools, was not rejected.

Table 2

Analysis of Variance for Special Education Prevalence Change Rates Between Race/Ethnicity Categories in Connecticut EIP Schools

<table>
<thead>
<tr>
<th>Source</th>
<th>df</th>
<th>F</th>
<th>Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between Groups</td>
<td>1</td>
<td>.629</td>
<td>.537</td>
</tr>
<tr>
<td>Within Groups</td>
<td>51</td>
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<td></td>
</tr>
<tr>
<td>Total</td>
<td>52</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Research Question 3

Research Question 3 asked: Is there a significant difference in special education prevalence change rates between the nine Connecticut education reference groups (ERG) of EIP schools?

To test the third research question, all 158 EIP schools were included. The first step in analyzing the data was an examination of stem-and-leaf plots to test the assumption of normality and to determine if there were any extreme data values. The distribution of special education prevalence change rates appeared normal for each ERG group. There were no extreme or outlying values.
To test the assumption of equal variance, the Levene Test for Equality of Variances was used. The results were clearly not significant ($F = .890, p = .527$) indicating that the population variances for the ERGs can be assumed to be equal.

The essential result was that the mean special education prevalence change rates ranged from a decrease of 4.36 prevalence points in ERG G ($N = 14$) to an increase of 1.70 prevalence points in ERG I ($N = 19$). See Table 3.

<table>
<thead>
<tr>
<th>Education Reference Group</th>
<th>Mean</th>
<th>N</th>
<th>Standard Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>.042041</td>
<td>3</td>
<td>3.2424</td>
</tr>
<tr>
<td>B</td>
<td>.750459</td>
<td>14</td>
<td>2.9016</td>
</tr>
<tr>
<td>C</td>
<td>-1.126019</td>
<td>14</td>
<td>3.9281</td>
</tr>
<tr>
<td>D</td>
<td>-.773730</td>
<td>30</td>
<td>3.7289</td>
</tr>
<tr>
<td>E</td>
<td>-2.081211</td>
<td>3</td>
<td>2.0930</td>
</tr>
<tr>
<td>F</td>
<td>.029623</td>
<td>39</td>
<td>3.0503</td>
</tr>
<tr>
<td>G</td>
<td>-4.359665</td>
<td>14</td>
<td>4.6197</td>
</tr>
<tr>
<td>H</td>
<td>-.241124</td>
<td>22</td>
<td>3.9569</td>
</tr>
<tr>
<td>I</td>
<td>1.696610</td>
<td>19</td>
<td>3.5101</td>
</tr>
<tr>
<td>Total</td>
<td>-.427446</td>
<td>158</td>
<td>3.8062</td>
</tr>
</tbody>
</table>

To determine whether the mean special education prevalence change rates for the nine ERGs were significantly different, a one-way analysis of variance was performed. As presented in Table 4, the special education prevalence change rates were found to differ significantly between ERGs, $F (8, 149) = 3.385, p < .05$. 

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Table 4

Analysis of Variance for Special Education Prevalence Change Rates Between Education Reference Groups in Connecticut EIP Schools

<table>
<thead>
<tr>
<th>Source</th>
<th>df</th>
<th>F</th>
<th>Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between Groups</td>
<td>8</td>
<td>3.385*</td>
<td>.001</td>
</tr>
<tr>
<td>Within Groups</td>
<td>149</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>157</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*p < .05.

The F statistic indicated that the difference in special education prevalence change rates between the ERGs was not due to chance alone. There is a significant difference. Null Hypothesis 3, There is no significant difference in special education prevalence change rates between the nine Connecticut education reference groups (ERG) of EIP schools, was rejected.

The significant finding in the one-way analysis of variance indicated that at least two ERG means were different. The significant F ratio did not identify which ERG or ERGs were significantly different. A post hoc comparison was conducted in order to explore what happened in the data and account for the statistically significant finding. Tukey’s honest significant difference test (HSD) was used because it is robust for data with unequal Ns (Newton & Rudestam, 1999). The results of the post hoc comparison indicated that one ERG (ERG G) accounted for all the significant difference identified. The EIP schools (N = 14) in ERG G had a mean decrease of 4.36 prevalence points.
Additional Comparisons

After the main effect was found for Research Question 1, analyses proceeded to the second and third research questions. The data were then examined through two additional analyses regarding the initial year of EIP participation. The first analysis was the calculation of Spearman’s rho correlation coefficient to determine if there was a correlation between the special education prevalence change rate and the initial year of EIP participation in EIP schools. As presented in Table 5, there was no correlation between the special education prevalence change rates and the initial year of EIP participation in EIP schools, \( r = .027, \ p < .05 \).

Table 5

<table>
<thead>
<tr>
<th>Correlation Coefficient for Special Education Prevalence Change Rates and the Initial Year of EIP Participation of EIP Schools (( N = 158 ))</th>
</tr>
</thead>
<tbody>
<tr>
<td>Change</td>
</tr>
<tr>
<td>Change</td>
</tr>
<tr>
<td>Initial Year</td>
</tr>
</tbody>
</table>

The second additional analysis involved a one-way analysis of variance performed to determine if there was a difference in special education prevalence change rates between the initial year of EIP participation quartiles in EIP schools.
First, the assumption of normally distributed data was examined through a preliminary plot of the distribution. Stem and leaf plots displayed normal probability.

As presented in Table 6, the special education prevalence change rates for initial year of EIP participation quartiles of EIP schools did not vary significantly, \( F(3, 157) = .352, p < .05 \).

Table 6

<table>
<thead>
<tr>
<th>Source</th>
<th>df</th>
<th>( F )</th>
<th>Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between Groups</td>
<td>3</td>
<td>.352</td>
<td>.788</td>
</tr>
<tr>
<td>Within Groups</td>
<td>154</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>157</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The essential result was that the special education prevalence change rates between initial year of EIP participation quartiles in EIP schools was not significant. There is no difference in special education prevalence change rate quartiles based on the number of years of EIP participation.
CHAPTER V

DISCUSSION

Introduction

This study was designed to contribute to the formulation of public policy regarding the special education prevalence dilemma. Research questions considered the impact of a formalized prereferral intervention system (EIP) on special education prevalence. The overall research design consisted of a comparison of special education prevalence change rates in EIP schools and non-EIP schools. Special education prevalence change rate was the principle dependent variable. The principle independent variable was participation in Connecticut’s Early Intervention Project (EIP), a training and technical assistance project designed to establish systems of prereferral intervention within schools to support students in general education classrooms in order to improve student achievement and reduce inappropriate referrals to special education.

Special education prevalence change rates in Connecticut schools participating in EIP (EIP schools) were compared to Connecticut schools not using EIP (non-EIP schools). A number of attribute variables were also studied.
Significant and Substantive Results

The mean special education prevalence change rates between schools participating in EIP (EIP schools) and non-EIP schools were found to differ significantly, \( F(1, 862) = 4.876, p < .05 \). Statistical significance, however, should not be confused with practical, substantive significance or importance (Newton & Rudestam, 1999; Robinson & Levin, 1997). Although the results indicated that .77 of a prevalence point difference between EIP schools and non-EIP schools was statistically significant, the question remained as to whether three-fourths of a prevalence point was important. Is this information useful? Does the use of the EIP prereferral intervention model hold practical significance for Connecticut? Are the efforts involved in establishing these systemic building-based teacher teams worth the time, effort, and resources involved? There is a national trend toward requiring prereferral intervention (Carter & Sugai, 1989). Should educators consider such approaches as viable options for lowering special education prevalence?

As a matter of public policy, this finding was important for fiscal reasons. Special education has become a “growth industry” (Keedle, 1997, p. 7). It is litigious by nature and “costing local school districts a fortune” (Keedle, 1997, p. 7). All special education expenditures in 1997-98 in Connecticut totaled $784,997,075 (Connecticut State Department of Education, 1999b). An estimate of the fiscal change in lowering the prevalence rate .77 of a prevalence point is warranted given the substantial number of students and the overall cost of special education.
In the 1997-98 school year, there were 526,882 K-12 students in Connecticut. The apparent/obtained “effect” of the Connecticut EIP was approximately three-fourths of a prevalence percentage point of the total student population. This would amount to over 4,000 students who could have their immediate academic, behavioral, and social needs met by the general education classroom teacher without referral, evaluation, and placement through the special education system. (The specific calculation regarding the number of students was as follows: $526,882 \times 0.0077 = 4,057$ students.)

From a fiscal perspective, in the 1997-98 school year, special education represented 18.2% of total expenditures for elementary and secondary education, up from 18.0% the previous year and 16.8% from the 1992-93 school year when special education expenditures were $607,720,790 (Connecticut State Department of Education, 1999b). The costs of special education personnel (certified personnel and employee benefits) represented the largest expenditure at $433,621,222. The addition of expenditures for instructional supplies ($5,446,766) resulted in a conservative total of $439,067,988 for in-district special education expenditures in Connecticut schools in 1997-98.

Connecticut reported that a total of 65,742 students with disabilities were served in-district during 1997-98 (Connecticut State Department of Education, 1999b). Dividing the total number of students with disabilities served in-district into the total in-district expenditure for special education, resulted in a conservatively estimated per pupil in-district special education cost of $6,679.
In 1997-98, lowered special education prevalence rates in EIP schools by .77 of a prevalence point would have resulted in an estimated savings of $26,712,000 for educating the approximately 4,000 students who need not be placed in special education. This substantive fiscal savings could be used for other educational initiatives. Funds saved through lowered prevalence rates and the resulting decrease in administrative costs could be preserved for services to address the needs of any student not performing well in general education classrooms. Instructional programs might be improved (e.g., lower class size; more homogeneous, flexible grouping). Non-instructional services might be expanded (e.g., counseling; social work). Services might be extended to students who do not currently qualify for special education (e.g., low-achieving students). General education programs might be fortified (e.g., direct support to classroom teachers). When considering the cost effectiveness of EIP, it is critical to also note that students receive immediate assistance and support through EIP before they are even considered for special education evaluation and placement, both more expensive, and time-delayed, services.

More important than the fiscal savings, however, are the educational benefits of prereferral intervention. These include preventing children from involvement in the special education system when they do not truly need it. Will (1986b) suggested that problems arise when students experience the stigma associated with being labeled as disabled and in need of special education. The effects of this stigmatization are to isolate these students from their peers and result
in lowered expectations of success by teachers (Armstrong, 1985; Coles, 1987; Goldstein et al., 1965; Heller, 1982; Reschly, 1989; Salvia, Clark, & Ysseldyke, 1973; Yoshida & Meyers, 1975). Lowered teacher expectations for achievement and performance can result in less effort by the teacher and less learning by the student. Stigmatizing children with the special education label unnecessarily appears to negatively outweigh any perceived positive result inherent in the proliferation of special education prevalence.

A second educational benefit is that the prereferral intervention process appears to increase the abilities of teachers to educate students who are experiencing difficulty by broadening their range of assessment and instructional abilities and services while improving the attitudes of teachers toward students with difficulties (Kovaleski et al., 1995; Nelson et al., 1992; Phipps, 1998; Ponti et al., 1988; Pugach & Johnson, 1989; Sevcik & Ysseldyke, 1986). School based prereferral teams can assist teachers with the increasingly high number of students with mild difficulties who do not qualify for special education but would otherwise "fall through the cracks" (Ingalls & Hammond, 1996, p. 10) without prereferral intervention. A prereferral intervention recommendation, properly developed and implemented, can contribute valuable assessment data which may provide useful instructional information regarding skill or performance deficit (Daly, Witt, Martens, & Dool, 1997)

A research study conducted in Connecticut regarding the Early Intervention Project supported the above findings. Teachers reported changes in their
professional behavior regarding students at risk for referral to special education.
The respondents to a qualitative survey reported that their "whole way of looking at
children" had changed and that they "use the expertise on a daily basis" (Carroll,
1991, p. 8).

In summary, the statistical significance found between EIP schools and non-EIP schools regarding special education prevalence is also substantively significant.
The finding is important for both fiscal and educational reasons. The EIP prereferral intervention model holds practical significance for Connecticut. The results of this prereferral intervention model are worth the time, effort, and resources involved in the establishment of these systemic building-based teacher teams.

Other Results

Although there was significant difference in the special education prevalence change rates between ERGs in EIP schools as per the one-way analysis of variance, \( F(8, 149) = 3.385, p < .05 \), there were some interesting questions raised by the descriptive statistics. The post hoc comparisons showed that one ERG, ERG G, accounted for all the significant difference identified. The 14 schools in ERG G lowered their special education prevalence by a mean of 4.36 prevalence points, ranging from a decrease of 14.05 prevalence points to an increase of 3.45 prevalence points. Examination of the 14 schools revealed that 11 of the 14 schools had a decrease in special education prevalence. Further examination revealed that the 14 schools were from a total of 5 districts.
Perhaps this is not an ERG effect at all. Instead of ERG, district-wide commitment to EIP or some other district-level factor might have caused this cluster of ERG G schools to show such prevalence reduction. Case studies of the schools in this group should be conducted to better understand any district-level effects.

Implications and Recommendations for Further Study

The results support the use of the EIP model in Connecticut. This successful prereferral intervention model and the subsequent instructional and behavioral strategies associated with it can be expected to reduce the rate of referral for possible special education placement, thus lowering the special education prevalence rate.

This study did not consider the quality of the prereferral strategy recommended by the prereferral intervention team or the extent of implementation of the recommended prereferral strategy (treatment integrity) by the teacher seeking the assistance of the team. The success of a prereferral strategy depends largely on the appropriateness of the proposed action or intervention and the degree to which the proposed action or intervention was utilized and implemented by the teacher (Gresham, 1989; Gresham, Gansle, Noell, Cohen, & Rosenblum, 1993; Rosenfield & Gravois, 1996; Sindelar et al., 1992). In addition, past research on treatment integrity in prereferral intervention has indicated that there is often a lack of adherence to the instructional or behavioral recommendations of the prereferral team by classroom teachers even when the classroom teachers are provided with explicit verbal and written instructions (Gresham, 1989; Mortenson & Witt, 1998;
Noell, Witt, Gilbertson, Rainer, & Freeland, 1997; Witt, Noell, LaFleur, & Mortenson, 1997). Assessment of both these treatment integrity issues would assist the state-level developers of the EIP training and technical assistance as well as teams at the participating EIP schools with the identification of necessary professional development and accountability mechanisms. For example, training for EIP team members might be provided regarding practical tools for assessing the quality of a prereferral recommendation. Training might be provided on the methods and skills needed in facilitating greater and more accurate implementation by classroom teachers. Prereferral teams might mitigate factors that have been shown to be related to treatment integrity. These factors include the complexity of the intervention/treatment, the time required to implement the intervention/treatment, the materials and resources required for various interventions/treatments, the number of professionals and family members involved in implementation, the perceived and actual effectiveness of an intervention, and the motivation of the teacher and family to implement the intervention/treatment (Gresham, 1989).

Building principals and central office administrators could be supported in efforts to integrate appropriate prereferral intervention into systems of supervision and evaluation. The importance of the teacher’s role and the role of other intervention agents (e.g., family members) in implementing the recommended prereferral strategies cannot be overestimated and requires further consideration.

This study did not document that the prereferral intervention team procedures were implemented by the EIP schools as intended by the Early
Intervention Project (EIP). Determining the degree to which the innovation has been operationalized as designed could provide valuable formative data (Cook & Poole, 1982; Rosenfield & Gravois, 1996). Such an assessment would serve to clarify the impact of various prereferral team practices and enable replication across populations and programs. Treatment integrity data would also assist state and local policymakers in determining EIP implementation factors that seem most promising. Case studies are needed to confirm that it is in fact commitment and adherence to the EIP model that results in lowered prevalence rates. The findings of this study provide a framework for Connecticut educators regarding the development of both preservice preparation programs and inservice professional development programs. These programs should help educators to identify, develop, and implement assessments and interventions applicable for the general education environment. Preservice and practicing teachers, administrators, and support personnel also need instruction on the collaborative processes that underlie this prereferral intervention model.

The findings also provide a framework to direct further research. Although decreases in special education prevalence rates are important, it is clear that positive changes in student performance that generalize across settings and time are most important. Thus, additional studies of the effect of prereferral intervention on student performance are needed. These studies should include both short-term and longitudinal examinations of the academic, behavioral, and social achievement of students. What are the long-term prospects for students who are not referred and
placed in special education programs? Does the implementation of a prereferral intervention system influence overall student academic, behavioral, social, and emotional development? Do children in a prereferral intervention model demonstrate more academic and behavioral gains than children in service-delivery systems without EIP?

Future research should also identify the factors that affect the implementation of the EIP model. This would include administrative structures (e.g., resources, staffing, district and school policies and procedures, organizational support), process variables (e.g., skills, roles, expectations, perceptions, and characteristics of staff responsible for implementing the approach), interventions (e.g., effectiveness and appropriateness of interventions for the general education environment), and characteristics of students whose needs are best met with this approach (e.g., severity and type of academic and behavioral difficulties). These investigations would provide important information to further develop and refine the Connecticut Early Intervention Project.

Summary

The study of the success of prereferral intervention is intricate and problematic. This initial work has been formative in nature and much work remains to be done in order to determine the particulars of Connecticut's Early Intervention Project (EIP). However, the findings to this point suggest that the EIP prereferral intervention model holds practical significance for Connecticut schools. The EIP
model should be considered a viable option for lowering special education prevalence.
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