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# A model for evaluating the effectiveness of mainstreaming.

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A MODEL FOR EVALUATING  
THE EFFECTIVENESS OF  
MAINSTREAMING

Presented to the

Graduate Faculty  
University of Nebraska  
at Omaha

In Partial Fulfillment  
of the Requirements for the Degree  
Specialist in Education

University of Nebraska at Omaha

by

Yvonne Crockett

April 1984

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FIELD PROJECT ACCEPTANCE

Accepted for the Graduate Faculty, University of Nebraska in partial fulfillment of the requirements for the degree Specialist in Education, University of Nebraska at Omaha.

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CHAPTER I  
INTRODUCTION

Years ago it was a common and accepted practice to segregate handicapped students from their nondisabled classmates. It was presumed that handicapped youngsters needed a sheltered segregated environment in order to make satisfactory progress in school. Handicapped students were given a special curriculum and social contact with their school peers was limited (Dunn, 1968). However, since the 1960's there has been a trend towards moving handicapped children from segregated classrooms into regular class settings. This trend gained momentum which led to the passage of the federal mandate Public Law 94-142 which stated that handicapped individuals should not be inappropriately segregated from their nonhandicapped peers, and that they should be educated in the "least restrictive environment."

Today, mainstreaming is a term used to describe the practice of providing the most appropriate education in the least restrictive environment. This involves moving handicapped students from segregated special education classrooms and integrating them into regular settings with nonhandicapped children. In most instances, mainstreaming is defined in terms of how much time a handicapped child spends in regular classes for academic as well as nonacademic purposes. However, to imply that mainstreaming is merely the placement of students would be misleading since educational planning, programming and clarification of staff responsibilities are also major components of the mainstreaming model (Hallahan and Kauffman, 1982; Ryor, 1978). An array of services should

be made available to provide options which meet the diverse needs of handicapped pupils. For example, some students are capable of spending a full day in a regular classroom while others join nonhandicapped peers only one or twice a week for activities such as music and art (Peterson et al 1983; Reynolds, 1962).

Some educators applaud mainstreaming while others are highly critical of the idea (Leinhardt and Pally, 1982). Administrators often view mainstreaming as a mandate which places an additional financial burden upon the school system ("Needed," 1983; Semones, 1980). Many teachers also have negative views of mainstreaming. Most regular classroom teachers do not have the basic skills necessary for teaching handicapped children and yet they are often required to design programs, implement major portions of the individualized education plan, attend conferences, counsel parents and write daily observation reports. These duties are added to the task of providing for the thirty nonhandicapped students in the classroom (Hudson et al 1983; Salend, 1984). Parents also have concerns regarding this division of teacher time. They feel their nonhandicapped child will be neglected because of the extra demands placed on the teacher as provisions are made for the special needs of handicapped youngsters (Smith and Tawney, 1983).

✱ Some educators have positive reports of mainstreaming efforts. Non-handicapped students learn to understand their exceptional classmates and to demonstrate their acceptance of individual differences by assisting their handicapped peers in various ways. For example, youngsters read to their less capable classmates, learn to communicate using sign language and push wheelchairs down the halls (Custer and Osguthorpe, 1983; Daly, 1979).



Mainstreaming also fosters cooperative staff planning. The efforts of regular and special educators can be enhanced if they work as a team. The special educator often provides the regular classroom teacher with techniques for working with all pupils. This added focus on nonhandicapped students can lower the regular classroom teacher's resistance to mainstreaming if the model is perceived as a strategy which benefits all students (Hoben, 1980; Ryor, 1978; Salend, 1984).

Although mainstreaming models vary, all programs should be evaluated on a regular basis. Data must be collected, organized and interpreted in order to examine the success of the approaches used such as placement procedures, teaching strategies and availability of support services. This analysis of data enables educators to evaluate each student's progress in the mainstream and to assess overall program effectiveness.

This study was conducted in a small nonpublic high school in the Midwest during the 1982-83 school year. Although a high percentage of the students enrolled had histories of either behavioral, academic or attendance problems, a group of pupils was identified as special needs based on academic performance which was significantly below that of the general population at this atypical school. These special needs students were previously scheduled into resource rooms at least one period each day for remedial instruction in reading, language arts, math and speech therapy.

The school's present mainstreaming model has been in effect for the past four years. Forty-three special needs students are integrated in all subject areas throughout the day. The speech-language clinician provides the only direct support service available. Only a small number of disabled students receive this service. Indirect support service is provided

by special education administrators.

Achievement expectations are the same for special needs and non-handicapped pupils enrolled in this school. These expectations are outlined in each individualized education plan and discussed by a team of educators in child-study team meetings held for each special needs student. To make decisions regarding each student's educational program a major question must be answered. This question is: To what extent do handicapped students meet criteria on the school system's academic and social skill objectives which are intended for all pupils?

#### Statement of the Problem

The purpose of this study was to evaluate the extent mainstreamed special needs students accomplished the objectives set forth by the school system as compared to the accomplishments of nonhandicapped students on these same objectives.

#### Significance of the Problem

The major goals of the mainstreaming movement include reducing the labeling stigma, reducing social isolation and increasing the effectiveness of educational programming for handicapped children (Johnson and Johnson, 1980; Jones et al, 1978; Leinhardt and Pally, 1982; Macmillan and Semmel, 1977). Since there are many mainstreaming options, attempts must be made by administrators and teachers to make certain the programs implemented for special needs students are successful. Parents are also concerned with the school performance of their handicapped child and tend to measure the success of the school program with the same expectations as parents of nonhandicapped students.

The recent cut-back in government funds has decreased the number of

special education programs offered in many school districts. This financial crisis, along with the development of vocal, organized parent groups who oppose labeling and segregation practices, has further contributed to the practice of regular class placement of handicapped students (Heaney, 1984; "Needed," 1983; Smith and Tawney, 1983). All of these factors place a heavy sense of accountability on the shoulders of educators who work with special needs students. It is therefore imperative that programs are evaluated to determine whether or not special needs students are grappling with unrealistic goals and what program adjustments are required to assure their success in the mainstream (Bennett, 1983; Jones et al, 1978; MacMillan and Semmel, 1977).

Although this study was conducted in a small, nonpublic school, the questions raised and the results obtained will undoubtedly present implications for larger educational settings.

#### Delimitations

This study focused upon a limited population of special needs students attending a small high school. Academic evaluations included only the basic skill areas of reading and mathematics. No attempt was made to evaluate student achievement in the areas of science and social studies since many students in this study were not enrolled in these content area classes. No attempt was made to examine to what extent teacher attitude, teaching strategies or use of support services had on student achievement.

#### Methodology Employed

Population: The sample group included thirty-three high school students who were identified as special needs pupils because of deficits

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#### Methodology Employed

**Population:** The sample group included thirty-three high school students who were identified as special needs pupils because of deficits

in reading or mathematics. These handicapped students were initially singled out because they received a grade equivalent score at or below 5.0 on the California Achievement Test. These pupils were enrolled in grades nine through twelve. The comparison group consisted of 104 non-handicapped high school students who were also enrolled in grades nine through twelve.

Procedure: The California Achievement Test was administered to special needs students at the beginning of the 1983-82 school year, along with nonhandicapped students in the regular English and math classrooms. The post test was administered at the end of the school year.

All students were evaluated on educational objectives for mastery of academic and social skills, including attendance and participation in extracurricular activities. These objectives were set forth by the school system for nonhandicapped pupils as well as those who were classified as special needs. The objectives used in this study included the following:

1. Students will demonstrate measurable improvement of 1.0 years growth in reading within one school year.
2. Students will demonstrate measurable improvement of 1.0 years growth in mathematics within one school year.
3. Students will demonstrate measurable mastery of social skills curriculum by limiting referral visits to the principal's office to 0-1 during the school year.
4. Students will demonstrate improvement of attendance by limiting unexcused absences to 0-1 during the school year.
5. Students will demonstrate ability to get along with peers by maintaining enrollment in extracurricular activities

during the school year.

**Academic Data:** Academic growth was measured by comparing California Achievement Test pre and post test scores and obtaining a change score for each pupil.

**Nonacademic Data:** School records were examined to obtain data relating to office referrals, daily attendance and enrollment in extra-curricular activities for each pupil.

The above data were examined to compare special needs students who achieved the objectives set forth by this school system with nonhandicapped students who achieved these same established objectives.

#### Definition of Terms

1. Mainstreaming. As defined by this school system, mainstreaming shall mean the practice of placing special needs students in regular classrooms staffed by teachers who receive intensive training from special education administrators.
2. Special Needs Student. These are handicapped pupils who have academic deficits in the areas of either reading or mathematics. These deficits are significant enough to warrant program modification and close monitoring.
3. Regular Classroom. A class setting designated for instructing students in the general school population, as opposed to classrooms set aside exclusively for students with learning problems.
4. Social Skills Curriculum. A course of study required by this school system for each pupil enrolled. This course of study is implemented by every teacher and administrator throughout the school day. The observable behaviors stressed in this curriculum

include those skills which relate to positive interactions with adults and peers in the classroom with emphasis also upon compliance with school rules.

5. Extracurricular Activities. Nonacademic experiences designed to add enrichment to the regular school program, and to provide students with an opportunity to interact with their peers. Students are also encouraged to participate in these activities to develop and enhance their interests, abilities and talents. This school's extracurricular activities include school sponsored athletics, band, choir, drama, school clubs and the student council.
6. Unexcused Absence. Student did not receive permission to stay out of class. This permission must be obtained from a teacher or some other school staff member or from the student's guardian.

#### Organization of the Study

The report of this study is organized in the following manner:

1. Chapter I is an introduction to the field project. It presents background information, a statement of the problem, discussion of the problem and major steps in the procedure of the study.
2. Chapter II presents a review of the related literature concerning this problem.
3. Chapter III is devoted to the groups and procedures used in this study.
4. Chapter IV is devoted to the presentation and analysis of the data.
5. Chapter V includes a summary of the findings of this study as

well as the conclusions and recommendations.

6. A bibliography is included recording the sources of information used by the researcher.



## Chapter II

### REVIEW OF RELATED LITERATURE

In 1975 it was estimated that one million handicapped children were excluded from the public schools in the United States and that four million children lacked equal education opportunity (Hewitt, 1977). These figures are astounding when consideration is given to the idealistic principles and compulsory education laws which were established as early as 1852 in some states. Although free public education became a widespread concept, states had plenary power to decide what group of children would be granted the privilege to attend school. Handicapped children could be excluded if they had a "depressing and nauseating effect on the teacher and school children" (Hewitt, 1977). In the 1954 landmark case of *Brown v. Board of Education* the United States Supreme Court handed down a decision which clearly established education as a right to be enjoyed by all citizens. As a result of this legislation and court cases which followed, efforts were increased to halt the practice of denying the handicapped the right to a free public education (Heaney, 1984; Miller 1979; O'Reilly and Green, 1982).

Parents have had a leading role in the struggle to obtain equal educational opportunities for exceptional children. They responded to school exclusion and segregation practices by organizing advocacy groups and challenging local policies. These parent groups initiated court action which led to the enactment of legislation which changed the treatment of handicapped children throughout the United States (Heaney, 1984; Kammerlohr et al, 1983; McCarthy, 1983; Smith and Tawney, 1983). One

example of litigation which led to landmark legislation is the case of Pennsylvania Association for Retarded Children (PARC) v. The Commonwealth of Pennsylvania. In 1971 an advocacy group, PARC, filed a class action suit on behalf of thirteen retarded children who were denied education services. The court agreed on the three principles which the parents used as a basis to challenge the constitutional rights of these exceptional children. These principles included due process, right to education and least restrictive environment (Hasazi et al, 1979; O'Reilly and Green, 1982).

The most significant federal legislation for the benefit of exceptional children was a bill which was signed into law in 1975 and known as the Education for All Handicapped Children Act (Public Law 94-142). This Act replaced permissive legislation with mandatory laws which insure handicapped children the right to free and appropriate public educational services. Considered a civil rights act, this legislation has many provisions including the stipulation that handicapped children are to be educated with nonhandicapped peers to the maximum extent appropriate. This integration of handicapped and nonhandicapped students in the least restrictive environment is commonly known as mainstreaming. As a result of this federal intervention educators at the local level have discontinued debates as to whether or not mainstreaming should occur, and they are concentrating instead on the task of discovering the most effective methods for implementing successful mainstreaming programs (MacMillan and Semmel, 1977).

Evaluation has been defined as "the process of delineating, obtaining and providing information (data) for ascertaining the efficacy of plans, program activities, interventions and so forth" (Stufflebeam, 1971;

Worthen and Sanders, 1973). In order to assess the success of mainstreaming an evaluation model should be adopted to provide decision-makers with information which aids them in making recommendations as to whether a program should be continued, ended or modified (Dunst, 1979; Jones et al, 1978; MacMillan and Semmel, 1977).

Early attempts to evaluate special education programs included the efficacy studies during the 1970's which attempted to evaluate special class settings by comparing the academic achievement and social adjustment of EMR students in self-contained, special classrooms with mainstreamed students who had similar I.Q.'s. These studies have been criticized for methodological weaknesses which resulted in findings that were considered contradictory and inconclusive and therefore of little use to decision-makers (Leinhardt and Pally, 1982; MacMillan and Semmel, 1977). For example, the self-contained classroom differed from the regular class in regard to factors such as pupil-teacher ratio, curriculum and teacher competencies. Because of these differences it was difficult to attribute pupil success to class placement alone (Gresham, 1983; Leinhardt and Pally, 1982; MacMillan and Semmel, 1977).

The use of multifaceted evaluation procedures avoid the shortcomings of early unitary efficacy studies (Dunst, 1979; Gresham, 1983). These procedures can be categorized as formative or summative models of evaluation. Formative evaluation is cyclical and therefore useful in providing feedback that can be useful to program developers seeking to improve the design of an ongoing program. In contrast, summative evaluation is often used to critique a completed program or project. A four level formative model for comprehensive program evaluation has been suggested by Stufflebeam (1971). The components of this model include:

1. Content Evaluation consists of generating objectives that obviously must be clearly stated in order to "select instruments and procedures with which to measure (program) outcomes in a reasonable fashion." Context evaluation should occur prior to the program implementation.
2. Input Evaluation has the goal of determining the most efficient use of human and material resources in order to serve unmet needs.
3. Process Evaluation consists of monitoring implementation activities so that problems can be identified and modification procedures can be developed.
4. Product Evaluation consists of evaluating the achievement of stated goals and objectives and to determine the amount of progress made toward the standards established.

Goal attainment scaling (GAS) is another formative evaluation approach that can be used to evaluate mainstreaming programs (Maher, 1983). This technique which is especially useful for the evaluation of criterion-referenced programs, consists of developing a guide or matrix which includes three to five goal areas and three to five levels of outcome for those goals. Goal indicators are arranged along a continuum from the "most favorable outcome thought likely to occur," "the expected level of success," to "the most unfavorable outcome thought likely to occur." Using this scale, goal attainment scores and change scores are calculated and results interpreted. If used properly, goal attainment scaling can be a useful evaluative tool for supplying information to decision-makers.

Jones et al. (1978) suggest a multifaceted approach which examines several factors used to assess program effectiveness and student

achievement in mainstreaming programs. These factors or dependent variables include the following measures and methods of assessment:

Dependent Variables

<u>Measure</u>	<u>Method of Assessment</u>
Student achievement	Standardized tests, locally constructed tests
Attitudes of administrators, teachers, parents	Attitude questionnaires, interviews, observations
Student adjustment	Observations, inventories and questionnaires
Student acceptance	Sociometric methods, observations, inventories and questionnaires
Cost effectiveness	Examination of expenditures in relationship to specified alternative objectives
School attendance	Attendance rolls

Multi-data collection models such as the above utilize procedures that can possibly offset the weaknesses that could result if the single assessment approach were utilized.

Individual student assessment must occur along with comprehensive formative program evaluations since regular class placement alone does not assure an appropriate education for handicapped children (Leinhardt and Pally, 1982). In fact, "the issue of what is being taught is more important than where it is being taught" (Jones et al, 1978). Handicapped students must be viewed as individuals with instruction modified to fit each child's unique needs. To facilitate this delivery of personalized instruction a comprehensive plan, commonly known as an individualized education plan (IEP), is developed. Specific goals and objectives are written and serve as the management tool for monitoring and delivering instruction for the special needs student. These goals

and objectives also provide a basis for assessing the student's progress in the mainstream and for preventing the practice of retaining handicapped students in the same program for years without evaluating the effectiveness of the placement (Glick and Schubert, 1981; Morgan, 1981; Ryor, 1978).

Dunst (1979) suggests a quasi-experimental design for evaluating the efficacy of the prescribed IEP activities in fostering developmental progress. Specific goals are targeted for intervention procedures with each student serving as his/her own control. Progress made in the non-intervention area is then used as a means of evaluating the effectiveness of the strategies employed to bring about achievement in the intervention area. Gains made in areas where intervention occurred are compared with gains in non-intervention areas to ascertain where achievement is greatest and to make decisions regarding the strengths and weaknesses of intervention strategies.

Standardized achievement tests are another means of measuring student growth and for evaluating achievement of IEP goals. Since academic growth is considered an important indicator of successful mainstreaming (MacMillan and Semmel, 1977; Jones et al, 1978), assessment tools must be carefully selected if reliable data are sought. Caution should be exercised when selecting and administering achievement tests because handicapped pupils are usually excluded from the standardization population. The possibility of modifying existing instruments and designing others for use specifically with the handicapped is an issue to be explored. Yoshida (1976) suggests the use of a procedure known as out-of-level testing. This procedure can be used to select an assessment instrument that is appropriate for the student's level of functioning

rather than following the common practice of assigning tests based on the pupil's chronological age and/or grade placement in school. The student's approximate level of functioning can be determined by referring to previous tests and calling upon teacher recommendations for test assignment levels. In a study by Yoshida (1976) the subjects included 359 EMR students. Teachers were asked to choose an appropriate level for each handicapped student taking the Metropolitan Achievement Test. The results of this study indicate that teacher judgment was accurate and guessing was minimal as indicated by the percentage of students who exceeded the chance score on the subtests. Out-of-level testing reduces student frustration and provides a more accurate measurement of student achievement (Bennett, 1983; Jones et al, 1978; MacMillan and Semmel, 1977).

As stated earlier, multifaceted assessment is considered a more appropriate method of evaluating mainstreaming programs. Therefore, an evaluation of mainstreaming should not be limited to an assessment of academic achievement. In fact, since handicapped pupils are often deficient in the area of social skills, some educators are of the opinion that mainstreaming can be successful only to the extent that it integrates handicapped students into constructive relationships with nonhandicapped peers (Gresham, 1983; Johnson and Johnson, 1980; Salend, 1984). The goal of developing appropriate adaptive behavior is applicable for all students, and the handicapped must learn the necessary social skills in order to be successful in the mainstream. Simply defined, social skills are those behaviors that are required in order to develop and build positive interpersonal relationships with peers and adults. An example of these skills includes:

- knowing how to give positive feedback appropriately
- knowing how to give negative feedback appropriately
- resisting peer pressure
- negotiating conflict situations
- following instructions
- engaging in conversation
- using personal problem-solving techniques

(Salend and Lutz, 1984; Schumaker et al, 1982).

Four techniques for assessing these social skills are described by Gresham (1980). The first technique involves observations in the child's natural school environment and recording frequency data. This is considered the most "face-valid" method of evaluating social skills. A second technique is the use of sociometric measures to obtain peer nominations and ratings. Friendship and acceptance are two factors that can be obtained with ratings of this type. A distinction should be made between the two factors since a handicapped child may not have many friends, but it would still be reasonable to expect that student to rate high on the acceptance scale. Teacher rating scales are a third method commonly used to assess social skills. Teachers are often asked to rate students on behaviors that are important for success in the classroom. The fourth technique is the strongly recommended multi-disciplinary team approach. Regular and special educators work with parents to gather information regarding the student's level of social functioning. This data can be useful in developing individualized programs.

Self-acceptance is also a desirable social goal for all students. A study was conducted by Silverman and Zigmond (1983) to test the assumption that the learning disabled adolescent has a poor self-concept that seems



to deteriorate as the youth gets older. The subjects were given a scale of items and asked to describe how he/she felt about himself/herself. The data does not support the poor self-concept assumption since the scores were in the normal range. In attempting to find a reason for the positive attitudes of the LD students in the study, one speculation is that: "LD students have managed to compensate for their school deficiencies by finding successful, ego-enhancing experiences outside school. Unlike elementary school-aged students for whom school and home define the boundaries of their lives, adolescents have begun to expand their boundaries. Peer relationships take on particular significance, and success in extracurricular activities may diminish the impact of school failure. Or, it may be that school success is just unimportant not only to the LD students but to their entire peer culture."

Participation in extracurricular activities can be therapeutic in terms of building self-concept and developing social skills. Davison (1983) describes wrestling as a positive experience for the handicapped student. Following participation in wrestling, students showed improvement in coordination, agility, strength, rhythm and thinking skills. Students also learned to demonstrate team effort and to use aggressive behavior in a positive way. Some students felt rewarded just by being held and touched and self-concept was greatly improved.

William Howe (1979) polled 400 secondary students to get their responses as to why they participate in extracurricular activities. Their answers were subjected to factor analysis, and five major categories of reason were identified:

1. Peer status value (52% of all answers)
2. Emotional stress value (18%)

3. Competition value (12%)
4. Physical activity value (11%)
5. Life-long value (6%)

High status activities seemed to be those which provided an opportunity for competition and placed the competitor in a state of emotional stress.

Given an opportunity handicapped youth can also compete successfully in extracurricular activities and gain acceptance and high peer status. This achievement of peer acceptance can greatly benefit the handicapped pupil especially if this recognition is extended into the regular classroom setting.

It is crucial that mainstreamed students quickly learn those social skills that are necessary for success in the classroom in order to avoid being seen as a discipline problem. Student discipline problems have been identified by teachers as the prime factor in decreasing time-on-task (Time on Task, 1982). Direct teaching instruction is interrupted and pupils are distracted and lose valuable learning time while the teacher reprimands the disruptive student.

If a student is constantly interrupting the activities in the classroom by behaving inappropriately, suspension or expulsion may be considered. Lichtenstein (1980) examines the issues surrounding the suspension or expulsion of the special education student. He suggests that school authorities exercise caution and due process in attempting to suspend or expel a handicapped student since such a denial of educational service may be viewed as discriminatory. Alternative disciplinary strategies should be attempted to avoid removing students from the mainstream for long periods of time so that he/she can continue to experience success in the school

program. This goal of encouraging uninterrupted attendance should also extend to include pupils who voluntarily stay out of school since frequent absences can result in the handicapped youth feeling removed from the mainstream of classroom activities, thus creating additional academic and social problems (Moberly, 1980; Sullivan, 1983). Awards and other positive reinforcers can reduce absenteeism, increase the student's opportunity to learn which also increases his/her chance of succeeding in the mainstream.

### Summary

Federal mandates often result in compliance dilemmas. With the passage of P.L. 94-142 educators were faced with the task of implementing and evaluating mainstreaming programs. This resulted in the development of multifaceted models. Some of these models suggest the measurement of variables such as academic achievement, peer relationships, attendance, and participation in extracurricular activities (Davison, 1983; Jones et al, 1978). This multifaceted approach to evaluation can provide a great deal of information for decision-makers as to whether or not the pupil's placement in the mainstream is an appropriate one.

## Chapter III

### PROCEDURES

This project was undertaken to assess the performance of high school handicapped students on several objectives set forth by the school system and to compare the achievement of these handicapped youths with nonhandicapped peers on these same objectives as a means of measuring the success of the school's mainstreaming program. The data collected during this project represents student performance during the 1982-83 school year.

#### Subjects

All subjects were enrolled in grades nine through twelve in a small high school in the Midwest with a total student population of 295. The school is part of a residential program, and while most of the subjects lived on campus, seven percent resided at home and utilized public transportation to travel back-and-forth to school each day.

All subjects were administered the California Achievement Test in English and math classes during the last week in August 1982. Based upon these test results along with daily classroom observations and assessments, forty-three students were identified as high-risk for success in academic and social skill curriculum areas. This initial identification process consisted of selecting students who received a grade equivalent score at or below 5.0 in math or reading as measured by the California Achievement Test. Individual child-study team meetings were conducted to discuss strengths, weaknesses and unique educational needs for each identified student. The team meetings included the student's guardian(s).

classroom teachers, speech-language clinician, counselor, principal and special education supervisor. An individualized education plan was developed by this team for each student identified as special needs. These special needs students had I.Q. scores within the normal range, and although some had been categorized as learning disabled by previous school districts, specific special education labels were not used by the school system involved in this project.

Of the total population, only 104 nonhandicapped and 33 handicapped students were included in this study due to attrition and/or missing or unsuitable post test data. Students were excluded from the project for some of the following reasons:

1. Student transferred to another school during the school year.
2. Student completed the required credits for graduation and did not enroll in an English or math class during the second semester.
3. Growth could not be calculated using the California Achievement Test since the student scored at the ceiling of the test (12.9) on both pre and post tests.

### Procedure

Academic growth was measured by subtracting California Achievement Test pretest scores from post test scores and obtaining a mean difference for both handicapped and nonhandicapped groups. This procedure was used for math and reading to determine whether or not improvement of 1.0 years growth had been achieved.

The California Achievement Test (CAT) was chosen by this school system because of the reporting information. The CAT reports both

norm-referenced and criterion-referenced information. Another major feature of the CAT is that it can be used for functional level testing (Yoshida, 1976). All handicapped and fourteen percent of the nonhandicapped students were administered tests below his/her grade placement level. Teachers assigned lower level tests to these nonhandicapped students because they had demonstrated frustration during previous classroom testing situations. This teacher judgment was used to assign each student a test from the ten CAT levels available.

Achievement in the area of social skills was measured by gathering data from office records. Mastery of the social skills objective was measured by observing each student's classroom interactions with adults and peers and compliance with school rules. Each infraction resulting in an office referral had been recorded. Data were collected from the principal's weekly incident reports of students referred to the office by teachers who requested administrative intervention for disruptive pupils. Students were considered disruptive if they refused to demonstrate any skill listed as part of the school's social skills curriculum. Each referral resulted in counseling, suspension, loss of privileges or some other type of disciplinary action. Data were examined to compare the average number of office referrals for nonhandicapped and handicapped students.

Self-acceptance and positive peer relationships were evaluated by recording each student's participation in extracurricular activities during the school year. Data were gathered from the physical education office and from teachers who sponsored clubs and other special groups. The number of students engaged in extracurricular activities was recorded for both groups so that a comparison could be made between handicapped and nonhandicapped pupil participation.

Achievement of the attendance objective was measured by recording unexcused absences. Data were obtained from the attendance officer's daily reports for the 1982-83 school year. Unexcused absences were differentiated from excused absences in order to compile a list of students who chose to miss class as compared to those who were excused for medical appointments or some other acceptable excuse. The data were examined to determine the number of special needs students who demonstrated more than 0-1 unexcused absences as compared with the absence rate for nonhandicapped pupils.

The foregoing data collection methods are components of a model which was designed for use in evaluating mainstreaming programs. This model utilized multifaceted procedures to avoid the pitfalls of early efficacy studies. The results were intended for use in decision-making aimed at the improvement or maintenance of program effectiveness.

## Chapter IV

### PRESENTATION AND ANALYSIS OF DATA

The school system involved in this study set forth objectives which were intended for handicapped and nonhandicapped students. Data were collected and analyzed in order to compare these two groups and to determine whether or not handicapped students were as successful as their non-handicapped peers.

Table I

Comparison of Handicapped and Nonhandicapped Students  
Who Achieved the Reading Objectives During the 1982-83  
School Year

Group	% Who Achieved Objectives	Mean Change Score	SD	t
Handicapped	45.5	.779	.992	1.217
Nonhandicapped	51.0	1.082	1.823	NS

N=137,  $p > .05$

Table I includes the results of data analyzed for reading achievement. It is shown that 45.5 percent of the handicapped students achieved this objective as compared to 51.0 percent of the nonhandicapped pupils. The average gain is indicated by the mean change score of .779 years growth for the handicapped and 1.082 years growth for nonhandicapped students. The calculated t value of 1.217 is smaller than the critical value of 1.98. This analysis indicates that the means are not significantly different for the two populations. It can therefore be



concluded that there is no significant difference between the reading achievement of handicapped students as compared to the nonhandicapped.

Table II

Comparison of Handicapped and Nonhandicapped Students Who Achieved the Math Objectives During the 1982-83 School Year

Group	% Who Achieved Objectives	Mean Change Score	SD	t
Handicapped	57.6	1.094	1.193	1.076
Nonhandicapped	55.8	1.349	1.170	NS

N=137,  $p > .05$

Table II contains data for students who achieved the objective for mathematics. As indicated by the information shown 57.6 percent of the handicapped students achieved this objective as compared to 55.8 percent of the nonhandicapped. The average gain is indicated by the mean change score of 1.094 years growth for the handicapped pupils and 1.349 years growth for the nonhandicapped.

The t value of 1.076 is smaller than the critical value of 1.98 thus indicating that the means are not significantly different for the two populations. These results, as in the case of the reading objective, indicate no significant difference between the achievement of handicapped and nonhandicapped students in the area of math.

Table III

Comparison of Handicapped and Nonhandicapped Students Who Achieved the Social Skills Objective During the 1982-83 School Year

Group	% Who Achieved Objectives	Mean Referrals for Students not Achieving Objective	SD	t
Handicapped	66.7	3.000	1.90	1.161
Nonhandicapped	62.5	3.821	2.59	NS

N=137,  $p > .05$

An analysis of the data collected for student office referrals is shown on Table III. This was a measure of the student's ability to demonstrate appropriate social skills and to avoid being sent to the office for disciplinary action. Of the handicapped group, 66.7 percent achieved this objective as compared with 62.5 percent nonhandicapped students.

Because of the nature of the criteria set for this objective (0-1 visits was considered mastery), statistical procedures could not be used to compare groups who achieved the objective. Therefore, data were also collected and analyzed for students who did not achieve the objective. The mean number of referrals for students not achieving this objective was 3.000 for the nonhandicapped and 3.821 for the nonhandicapped. There is no significant difference between these two groups for this objective as indicated by the t value of 1.161.

Table IV

Comparison of Handicapped and Nonhandicapped Students  
Who Achieved the Attendance Objective During the 1982-83  
School Year

Group	% Who Achieved Objective	z
Handicapped	60.6	-1.365
Nonhandicapped	73.1	NS

N=137,  $p > .05$

Table IV provides information for students who achieved the objective for attendance. Of the handicapped group 60.6 percent achieved this objective as compared to 73.1 percent for nonhandicapped students. The z value of -1.365 is smaller than the critical value of 1.96 thus indicating there is no significant difference between these two groups for this objective.

Table V

Comparison of Handicapped and Nonhandicapped Students  
Who Achieved the Objective for Participation in Extra-  
Curricular Activities During the 1982-83 School Year

Group	% Who Achieved Objective	z
Handicapped	63.6	-.712
Nonhandicapped	70.2	NS

N=137,  $p > .05$

Of the handicapped students who participated in extracurricular activities, there were 63.6 percent. This is compared with the nonhandicapped participation of 70.2 percent. The z value of  $-0.712$  is smaller than the critical value of 1.96 thus indicating there is no significant difference between the two groups for this objective. See Table V.

Many students in both groups participated in more than one activity. It was noted that handicapped pupils selected a variety of sports activities. See Table VI.

Table VI  
Students Participating in Extracurricular Activities  
During the 1982-83 School Year

Activity	Total Students Participating	% Handicapped Participating
Football	48	19%
Basketball	24	33%
Track	23	13%
Cross-Country Track	3	0%
Tennis	5	20%
Golf	4	50%
Wrestling	27	15%
Baseball	11	27%
Cheerleader	2	100%
Student Council	5	20%
Band	8	0%
Choir	6	33%

Table VI (continued)

Activity	Total Students Participating	% Handicapped Participating
Chess Team	5	40%
Drama Guild	10	0%
Journalism	4	0%

Table VII

Comparison of Handicapped and Nonhandicapped Students  
Who Achieved the Objectives Set Forth by the School  
System During the School Year 1982-83

Group	% Reading	% Math	% Social Skills	% Attendance	% Extra-Curricular
Handicapped	45.5	57.6	66.7	60.6	63.6
Nonhandicapped	51.0	55.8	62.5	73.1	70.2

### Summary

Table VII summarizes student achievement on the five objectives set forth by the school system. Percentages are used to compare the two groups. However, these percentages are not significant for any of the areas compared as indicated by each analysis using the t test and the z test of differences in proportions. Handicapped students did at least as well as nonhandicapped students in achieving all five objectives set forth by this school system.

## Chapter V

### SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

#### Summary and Conclusion

It was the purpose of this study to evaluate the extent mainstreamed special needs students accomplished the objectives set forth by the school system as compared to the accomplishment of nonhandicapped students on these same objectives. The writer reviewed the literature related to this study and noted the need and importance of multifaceted approaches for the evaluation of mainstreaming as cited by several authors (Dunst, 1979; Gresham, 1983; Jones et al, 1978; Leinhardt and Pallyay, 1982; Macmillan and Semmel, 1977). Objectives were used to evaluate and compare the accomplishments of handicapped and nonhandicapped students. These objectives, which were listed previously in Chapter 1, are repeated below:

1. Students will demonstrate measurable improvement of 1.0 years growth in reading within one school year.
2. Students will demonstrate measurable improvement of 1.0 years growth in mathematics within one school year.
3. Students will demonstrate measurable mastery of social skills curriculum by limiting referral visits to the principal's office to 0-1 during the school year.
4. Students will demonstrate improvement of attendance by limiting unexcused absences to 0-1 during the school year.
5. Students will demonstrate ability to get along with peers by maintaining enrollment in extracurricular activities during the school year.

Analysis of the data revealed no significant difference between handicapped and nonhandicapped student achievement. It is therefore concluded that handicapped students are as successful in the mainstream as their nonhandicapped peers as indicated by their comparative success in the academic and social skill areas.

### Recommendations

Based on the findings in this study, observations during data collection and readings in related literature, the following recommendations are presented:

1. Contrary to the expectation of the researcher, there was no significant difference between the achievement of handicapped and nonhandicapped pupils in this study. However, frequent monitoring is suggested in order to make sure school wide objectives continue to be appropriate for mainstreamed students.
2. Program evaluation results should be used by decision-makers to modify or change existing programs.
3. A better system is needed for keeping accurate and updated records on all students. School records should be kept in one centrally located place for a minimum of five years. The writer spent unfruitful hours searching through student files only to learn that the information sought was filed in another office or had been discarded.
4. It was noted by examining attendance records that many handicapped and nonhandicapped students who showed a pattern of frequent absences often achieved less academically, participated in fewer school activities and dropped out of school more often.

Special intervention is needed for these pupils in order for them to experience success in the school program.

The foregoing recommendations are suggested for all students since mainstreaming should promote the intellectual and social development of both handicapped and nonhandicapped youth.



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