5-1990

Evaluation of Utah's Prereferral Intervention Mandate

J. Ron Nelson
Utah State University

EVALUATION OF UTAH'S PREREFERRAL INTERVENTION MANDATE

by

J. Ron Nelson

A dissertation submitted in partial fulfillment
of the requirements for the degree

of

DOCTOR OF PHILOSOPHY

in

Special Education

Approved:

UTAH STATE UNIVERSITY
Logan, Utah

1990

TABLE OF CONTENTS

TABLE OF CONTENTS continued

LIST OF TABLES

LIST OF FIGURES

LIST OF FIGURES continued

ABSTRACT

Evaluation of Utah's Prereferral Intervention Mandate

by

J. Ron Nelson, Doctor of Philosophy
Utah State University, 1990

Major Professor: Dr. Alan Hofmeister
Department: Special Education

The primary purpose of the present study was to evaluate the impact of Utah's prereferral intervention policy on the numbers of mildly handicapped students receiving special education services. Associated with this purpose, the study was also designed to identify the (a) types of prereferral intervention procedures available in school districts, (b) extent to which the procedures were implemented by schools, (c) effectiveness of the prereferral intervention procedures for maintaining students with handicaps in regular education, and (d) degree of prereferral intervention inservice training. In addition, LEA officials' perceptions regarding the prereferral intervention process were also examined.

It was expected, in light of previous research, that the prereferral intervention mandate would decrease the numbers of students classified (a) mildly handicapped, (b) learning disabled, (c) behavior disordered, and (d) intellectually handicapped. Because there was no information to suggest otherwise, it was also expected that the mandate would fail to have a differential effect on rural and urban school

districts and on the numbers of students classified as severely intellectually handicapped (control variable), whereas the degree of prereferral intervention inservice training provided teachers was expected to exert a systematic influence on the outcomes.

Results of the evaluation showed that the prereferral intervention mandate failed to impact the numbers of students classified (a) mildly handicapped, (b) learning disabled, (c) behavior disordered, (d) intellectually handicapped, and (e) severely intellectually handicapped (control variable). The mandate also failed to have a differential effect on rural and urban school districts and on high- and low-prereferral-intervention inservice school districts. In addition, the results of the survey indicated that LEAs have implemented a variety of prereferral intervention procedures. However, within school districts, the number of schools implementing the procedures varied. LEA officials were uncertain whether the prereferral intervention procedures were effective or whether they should be maintained. LEA officials also indicated that teachers fail to benefit from their participation in the prereferral intervention process. Furthermore, they were uncertain whether the process is a bureaucratic hurdle and whether it should be maintained.

(116 pages)

CHAPTER I

INTRODUCTION

The enactment of Public Law 94-142, The Education for All Handicapped Children Act (EHA) of 1975, mandated that children and youth with handicaps receive a free, appropriate public education in the least restrictive environment. Because of problems (e.g., overclassification of students as handicapped) associated with the implementation of Public Law 94-142, state education agencies (SEAs) have implemented state polices designed to resolve such problems. Clearly, SEA officials need information with which to monitor and facilitate the progressive refinement or termination of policy decisions.

A policy decision currently in need of monitoring or evaluation is Utah's prereferral mandate requiring school officials to employ academic and behavioral interventions prior to a referral for formal assessment and possible placement in special education. The prereferral intervention mandate was based on the assumption that a majority of students' social and academic problems can be resolved by regular education teachers employing interventions available within the regular education environment.

Carter and Sugai (1989) reported that 23 states required some type of prereferral procedures prior to referring students for formal assessment and possible special education placement. The use of prereferral intervention procedures is an adjustment by SEAs to problems associated with the referral, assessment, and placement processes mandated by Public Law 94-142. Specifically, a number of

researchers concluded that special education placements were being initiated by the referral rather than by a valid assessment (e.g., Algozzine, Christenson, & Ysseldyke, 1982; Sevick & Ysseldyke, 1986). The need for prereferral intervention was also supported by findings that 45% of learning disability classifications were in error.

Carter and Sugai (1989) noted that while most state agencies now support prereferral intervention, they have little or no information regarding the degree of implementation or the effectiveness of prereferral intervention procedures. In concluding their survey of state prereferral practices, Carter and Sugai stated,

> . . . future research should investigate the manner in which local education agencies implement their states' policies and recommendations. More importantly, research efforts should concentrate on evaluating the effectiveness of prereferral systems. (p. 302)

Clearly, SEA officials need information with which to monitor and facilitate the progressive refinement or termination of mandated prereferral intervention procedures.

When an SEA initiates a policy decision such as the prereferral mandate, it is put into effect statewide. In this situation, true experimental designs, with randomly assigned control groups, may be unfeasible. In addition, experts in research methodology have pointed out that the pattern of "observation-treatment-observation of change" associated with such designs is seldom appropriate for the task of monitoring or evaluating the often subtle effect of institutional policy decisions because they do not have merely "an effect" but "an effect pattern" across time (Campbell, 1969; Glass, Willson, & Gottman, 1975). As a result, they have recommended that officials employ time-

series designs and associated data analysis techniques in their evaluations of governmental and institutional policies and reforms (Campbell, 1969; Glass et al., 1975)

Time-series designs and associated data analysis techniques necessary to monitor or suggest causal claims of the effects of policy decisions are used extensively in business and economics (Box & Jenkins, 1970; Glass et al., 1975; Gottman, McFall, & Barnett, 1969). However, despite the utility of the time-series design, and its endorsement by experts in social research methodology, SEAs have failed to regularly employ this methodology in policy evaluations.

The most basic time-series experimental design involves some number of repeated observations, O, of an outcome variable across time with an intervention, I, introduced between two observations: A change in some property of the observations (i.e., level, trend, and/or pattern) that coincides with the I may be the effect of I on the outcome variable (Glass et al., 1975). Thus, time-series experiments, using archival records, can be used as an unplanned experiment to evaluate governmental or institutional policies or reforms.

In a post hoc time-series analysis there are two levels of causal inference that can be obtained regarding the potential association between the implementation of a governmental policy and changes in the system. However, it is important to first mention an important caveat to such inferences. Though the data obtained from such an analysis can be used to suggest a causal connection, convincing tests of such a connection must occur via the use of planned interventions.

The first level of inference involves the exploration of the fluctuations of a system relative to concomitant variation of the observations of another system over time. By studying this covariation, it is possible to generate hypotheses of a potential causal connection. Such analyses yield the most convincing information in the negative case (Glass et al., 1975). That is, if two series are unassociated, it is highly unlikely that they are causally connected. On the other hand, because two series are associated, they are not necessarily causally connected. Nonetheless, such an association provides evidence that such a connection may exist.

Another level of inference comes from generating post hoc hypotheses to account for the fluctuation of a system. This is achieved by examining events assumed to be associated with shifts in the series. Scanning analysis of the shifts in the series is accomplished by considering the series to be an interrupted time-series experiment (i.e., the event is considered the I and the obtained data are analyzed as such). In other words, a number of alternative time-series analyses are conducted.

A variety of modifications of the basic time-series design have been specified and illustrated (see Glass et al., 1975). Of course, depending on particular circumstances of subjects, processes, interventions, measurement procedures, and so forth, numerous other variations can be constructed. The time-series designs employed in the present study (described under designs) were selected for their potential for allowing the examination of the potential causal relationship between the prereferral mandate or other events (e.g.,

actual implementation of prereferral procedures) and subsequent changes in special education service delivery patterns.

To summarize, in the present study, time-series designs and associated data analysis techniques were selected to obtain information on the effect of the Utah State Board of Education's prereferral mandate on special education service delivery patterns. They were also selected to examine the differential effects of the policy on rural and urban and on high- and low-prereferral inservice schools and the historical threats of the study. Further, it was expected that the designs and associated analysis techniques would provide information with which to generate hypotheses to be tested in future planned intervention studies.

Problem Statement

Although there is a national trend toward requiring prereferral procedures, we lack information on their effectiveness. While researchers have raised concerns regarding special education referral, assessment, and placement practices, we do not know if the addition of mandated prereferral procedures has impacted these problems. The problem, then, was the lack of information on the effect of mandated prereferral policies.

CHAPTER II

REVIEW OF LITERATURE

Prereferral intervention is a service delivery approach currently supported by a majority of state education agencies (SEAs) (Carter & Sugai, 1989). Prereferral intervention can be broadly defined as a systematic collaborative effort to assist classroom teachers (Pugach & Johnson, 1989). Prereferral intervention is designed to reduce the need for special education services by providing assistance to students experiencing difficulty in the regular education classroom (Graden, Casey, & Bonstrom, 1985). Conversely, it is designed to facilitate the integration of students with handicaps into the regular education environment (Evan, 1990). Prereferral intervention is also designed to increase the abilities of teachers to educate students who are difficult to teach and improve their attitudes toward such students (e.g., Graden, 1989; Pugach & Johnson, 1989).

Prereferral intervention represents a reconceptualization of regular and special education service delivery processes (Pugach & Johnson, 1989). Prereferral intervention, as such, represents a trend toward increasing the use of indirect special education services (Graden, Casey, & Christenson, 1985) and the integration of regular and special education services (Graden, 1989). Further, scholars have associated prereferral intervention with the Regular Education Initiative (REI) effort as well as efforts to promote a fuller realization of mainstreaming (e.g., Evan, 1990). Pugach and Johnson (1989) pointed out that prereferral intervention is one of the most

complex issues currently being debated in education. Researchers have studied the effects of prereferral intervention on (a) special education service delivery (e.g., numbers of students referred for formal assessment) of schools, (b) students' social and academic performance, and (c) teachers' abilities and perceptions. Researchers have also examined the influence of teachers' perceptions of prereferral interventions on classification rates and studied the prereferral interventions employed by teachers.

Effects on Special Education Service Delivery Patterns

Chalfant, Pysh, and Moultrie (1979) reported the results of a case study in which they implemented a Teacher Assistance Team (TAT) model. The TAT model was designed to provide a day-to-day peer problem-solving group for teachers. The peer problem-solving group consisted of three teachers elected by the faculty with the referring teacher being the fourth member. Parents were also invited to be members of the team. The function of the TATs was to help teachers cope with children having social and academic problems and to obtain action on referrals if teams were unable to assist teachers.

The TATs, overall, resolved the problems of 129 (63.5%) of 203 children without further formal testing or referral in one school district (of five) across seven schools. On average, TATs only referred 74 (36.5%) children for special education services while the percentage of referrals to special education ranged from 13.2 to 60% across the seven schools. Chalfant et al. (1979), however, failed to provide a comparative standard to more fully evaluate the outcomes.

In another case study, McGlothin (1981) studied the effects of a School Consultation Committee (SCC) on the number of referrals made for formal assessment. Similar to the TAT approach developed by Chalfant et al. (1979), the SCC consisted of a team of regular and special education teachers who met on a regular basis and accepted referrals from classroom teachers. They helped teachers design, implement, and evaluate interventions. In contrast to the TAT approach, SCC members were trained for their roles and provided assistance as needed by an outside consultant. The numbers of students referred for formal assessment decreased by as much as 50% across the schools. (Specific data were not provided.)

In a relatively more rigorous evaluation, Graden, Casey, and Christenson (1985) implemented a prereferral intervention model based on a collaborative consultation approach to service delivery. The prereferral intervention model included six stages: four represented in the prereferral process (i.e., request for consultation, consultation, observation, and conference) and two represented in the formal referral process (i.e., formal referral and formal program meeting).

Because the cooperation and support of building principals were considered essential, the prereferral intervention model was modified across the six schools (incorporated the results from three schools in an earlier study by Graden, Casey, & Bonstrom, 1983). The modifications ranged from having referrals continue to flow first to the child study team to referrals made to the consulting teacher or appropriate grade level counselor who then referred the classroom

teachers to the consulting teacher. Relative to pre-implementation, formal assessment and placement rates declined in four of the six schools. Formal referrals to the Child Study Team also declined in three of the four schools. In the remaining two schools there was an upward trend in the number of students tested and placed. Close inspection of the results revealed that modifications made to the prereferral intervention procedures were unassociated with differences in the treatment outcomes. That is, schools that more closely implemented the prereferral intervention model as suggested by Graden et al. failed to consistently show more positive outcomes (i.e., reduced assessment and placement rates).

Expanding on this work, Ponti, Zins, and Graden (1988) studied the impact of the prereferral intervention model on the range of services provided by the school and the rates of referral for psychoeducational assessment. They also examined teachers perceptions regarding the prereferral intervention model. A seven-component framework developed by Maher and colleagues (Maher & Bennet, 1984; Maher & Illback, 1985) that is denoted by the acronym DURABLE (Discussing, Understanding, Reinforcing, Acquiring, Building, Learning, and Evaluating) was employed to implement the interventions under the prereferral intervention model.

Ponti et al. (1988) reported that, relative to pre-implementation (years 1-3), the range of services provided by the school increased to include more consultation and counseling. The rates of psychoeducational assessment were reduced by over 40% whereas the number of consultative cases increased during post-implementation

(years 4 and 5). Ponti et al. (1988) also reported that teachers viewed the prereferral intervention approach positively and that teachers indicated that it provided them more support and assistance. Teachers also believed that the prereferral intervention approach improved their problem-solving skills.

Finally, Maher (in press), ensuring treatment fidelity, systematically implemented a Teacher Resource Team (TRT). The TRT is designed to provide consultation or assistance to regular classroom teachers who educate students with problems; that is, a support system in which other teachers and building-level specialists provided consultation, technical assistance, and inservice training to regular classroom teachers. The TRTs at two high schools (E and W) were comprised of a director of guidance, five experienced regular classroom teachers, a resource teacher, and a school nurse, all of which were trained by an outside consultant. The TRTs met once a week during school hours or at the conclusion of the school day.

The TRT at school E met an average of 1 hour, 42 minutes with an average of 6.2 cases discussed per meeting, while the TRT at school W met an average of 1 hour, 25 minutes with an average of 5.3 cases per meeting. Taken together, TRTs discussed a total of 235 pupils. Classroom attainment goals were set in 78 cases, with goal attainment occurring in 59 of those cases. Eighty teacher-improvement goals were set, with goal attainment in 66 cases; no goals were set in 74 cases. After ensuring that the data were not autocorrelated (autocorrelated data can result in an over- or underestimation of the treatment effects), Maher (in press) reported that the number of formal referrals

for special education services in high schools E and W decreased from 15.0 to 6.8 and 13.8 to 5.8 per month, respectively. Regular classroom teachers' satisfaction with the prereferral support services they received also improved. (No systematic prereferral support services existed prior to the implementation of the TRT.)

Effects on Student Performance

Grabner and Dobbs (1984), in a case study, examined the effects of a TAT prereferral intervention approach on the disruptive behavior of a seventh-grade student. The TAT, composed of three elected faculty members, collected and compiled background information (e.g., teacher reports, standardized test results, observations, etc.), conducted a preliminary meeting to discuss the findings, met with the referring teacher to generate potential strategies, accepted the client teacher's decision to implement a behavioral contract, and obtained a follow-up summary from the teacher. Although no formal data were provided, the teacher reported that the behavioral contract developed by the TAT was effective.

In another case study, Zins, Graden, and Ponti (1988) studied the effects of the prereferral intervention model (described earlier) on the disruptive behaviors (e.g., hitting, choking, cursing, spitting) of a first-grade child. By the second week of intervention, the student's weekly occurrences of physical aggression toward others and property destruction were reduced from 4 to 0, spitting was reduced from 26 to 7, and cursing was reduced from 23 to 13 occurrences. Follow-up assessment indicated that the aggressive behavior remained at the rate

of 0 per day at school and was maintained for the duration of the year. However, the prescribed intervention failed to reduce the student's rates of noncompliance.

In a series of studies, Fuchs and Fuchs (1989a) studied a Mainstream Assistance Team (MAT) approach rigorously. The MAT was designed to assist teachers in dealing with students who are difficult to teach. Based on the behavioral consultation model (Tombari & Davis, 1979), the MAT stages included problem identification, problem analysis, plan implementation, and problem evaluation. Originally, MAT consultants participated as members of a multidisciplinary team composed of regular classroom teachers and other building-based support staff. MATs initially developed interventions involving some type of reinforcement. Teachers, however, failed to monitor and record student performance. As a result, the MATs always employed an intervention that required students to systematically monitor, record, and evaluate their own behavior as well as provide verbal feedback to themselves. Information collected from behavioral observations of 103 students and rating scales and questionnaires administered to teachers (reported earlier by Fuchs, 1989) indicated that the intervention reduced the frequency of most students' problems. Fuchs and Fuchs (1989a) also reported that teachers' tolerance improved toward students who were difficult.

In a component analysis of the MAT, Fuchs and Fuchs (1989b) examined the effectiveness of three increasingly inclusive versions of the Behavioral Consultation (BC) model underlying the MAT approach. In the least inclusive variation the consultant and teacher worked

collaboratively to identify and analyze the problem. However, the consultants did not assist or monitor the teacher's implementation of the intervention nor did they conduct a formative evaluation of the intervention effects. In addition to the first two stages (i.e., problem identification and analysis), the second variant required the consultant to make a minimum of two classroom visits to observe the teacher's implementation of the intervention and provide her/him corrective feedback. Similar to the first version, no formative evaluation was conducted. Finally, the third version incorporated problem identification, problem analysis, implementation, and formative evaluation.

Teachers reported that the BC 2 and 3 variants were more effective than the BC 1 version in reducing problem behavior. However, direct observations of student behavior failed to corroborate this result. Fuchs and Fuchs (1989b) suggested that the inconsistency between teacher ratings and direct observations of target behaviors may have resulted from the inaccuracy of the behavioral observations or teacher ratings. Or, that teachers may have been reluctant to express to the consultants that the students' behaviors had failed to improve. Fuchs and Fuchs (1989b) also pointed out that another possible explanation for the inconsistency might have been that the observations and ratings addressed different dimensions of behavior. That is, observations generated frequency data while teacher ratings represented judgments about severity, manageability, and tolerableness of behavior.

Finally, in an attempt to clarify these findings, Fuchs and Fuchs (1990) explored the honesty of teacher ratings and studied the additive

effects of the BC components underlying the MAT approach further. To do so, they compared teachers' ratings communicated to consultants with those expressed anonymously, employed a different teacher rating scale, increased the frequency of the observations of difficult-to-teach students, and compared the behaviors of such students with those of their peers.

Treatment-fidelity data indicated that teachers in BC 1 (least inclusive), BC 2, and BC 3 (most inclusive) implemented the interventions with similar frequency, thoroughness, and accuracy. (See descriptions of BC 1, 2, and 3 versions described under Fuchs & Fuchs, 1989b.) Overall, the BC 2 and 3 variants promoted more positive student change than the BC 1 version. Relative to their peers at post-observation, students' percentage of problem behaviors under BC 2 and 3 conditions decreased significantly while students under BC 1 failed to do so. These results were maintained at a 3-week follow-up. In addition, consistent with the behavioral observations, teachers of the more inclusive versions of the BC perceived that students' problem behaviors showed a significant decrease. It is important to note that because the initial interventions were adequate, teacher consultant teams under BC 3 conditions failed to modify any of the interventions. As a result, there was little or no difference between BC 2 and BC 3.

Although the findings suggest that the effects of the components of the BC model were additive, Fuchs and Fuchs (1990) pointed out that the time and resources required to implement them all may be unfeasible. That is, relatively few school districts may be able to

provide special educators and school psychologists opportunities to consult with teachers.

Effects on Teachers' Abilities and Perceptions

Pugach and Johnson (1988) studied the effects of a structured collaborative peer problem-solving process on teachers' tolerance, accuracy of problem identification, and effectiveness of the prereferral interventions selected. The peer collaboration process included problem-clarification through self-questioning, problem-summarization, generating potential interventions and predicting their outcomes, and developing an evaluation plan. Specifically, one teacher initiated the discussion and followed the steps in the process while the peer partner assisted in ensuring that the steps were followed.

Relative to teachers in the nonequivalent control group (43 teachers from elementary schools), teachers in the intervention group (48 teachers from elementary and junior high schools) showed a greater increase in their tolerance for the range of cognitive abilities their idealized teachable students might exhibit. Furthermore, teachers redefined 91% of the classroom problems and reported that the interventions produced the desired behavioral change. Teachers also expressed concern about what would happen in the following year if the receiving teacher failed to provide students with some similar type of individualized program as developed under the peer problem-solving process.

Finally, associated with these studies, researchers of two survey papers examined educators' perceptions regarding prereferral

intervention. Respondents of surveys were SEA officials or regular classroom teachers. In general, educators were asked the extent to which prereferral intervention procedures are effective or the extent to which such procedures are implemented. Carter and Sugai (1989) reported that although a majority of states required or recommended the establishment of prereferral intervention procedures by local education agencies, a majority of SEA officials were unsure of the effectiveness of such procedures. Consistent with this concern, only 5% of the 41 teachers surveyed by Harrington and Gibson (1986) thought that preassessment teams provided them new intervention ideas. Whereas a majority of teachers reported that the team failed to explore a sufficient variety of intervention options and that those they provided were unsuccessful. However, 42% of the teachers indicated that they had failed to implement the team's recommendations. Nevertheless, 74% of the teachers (only 56% responded to this question) indicated that they would like to have the preassessment process maintained.

Effects of Teachers' Perceptions of Prereferral Interventions on Classification Rates

After ensuring that the demographic characteristics of school districts did not exert a systematic influence on outcomes, McCall (1990) examined the effect of the (a) availability, (b) extent of use, and (c) perceptions of the effectiveness of prereferral interventions on the classification rates of students with mild handicaps in school districts in Pennsylvania. Two samples of school districts were drawn from the lower (i.e., 2 to 5%) and upper (i.e., 9 to 15%) deciles of

the distribution of the proportions of students classified mildly handicapped. Low-classification and high-classification rate districts failed to differ on the number, type, extent of use, or teachers' preference of prereferral interventions available to students. However, teachers in low- and high-classification rate districts differed in their perceptions of the effectiveness of prereferral interventions. That is, relative to teachers in high classification districts, those in low-classification rate districts viewed classroom-based interventions as well as school- and district-based alternative instructional programs as more likely to be successful with students.

Analyses of the Prereferral Interventions Employed by Teachers

Ysseldyke, Pianta, Christenson, Wang, and Algozzine (1983) asked 105 teachers to identify the prereferral interventions they had employed and the individuals they had conferred with prior to making a formal referral for assessment. Prereferral interventions attempted most often by teachers included instructional methods (i.e., techniques used to teach an academic lesson or affect behavior), behavioral techniques (i.e., used negative or positive reinforcement), structural changes (i.e., made changes in the amount of structure provided the student, e.g., work with aide), and specialized help (i.e., student received additional specialized assistance, e.g., resource room). With the exception of behavioral strategies used for behavior problems, however, there was little association between reasons for referral and

the types of prereferral interventions employed by teachers. Additionally, teachers most often conferred with special education teachers, principals, and parents prior to referring a student for psychoeducational assessment.

In an extension of this work, Sevick and Ysseldyke (1986) reported the results of two studies in which classroom teachers' proposed and actual prereferral interventions for students with behavior problems were examined. In Study 1, based on a 2-page summary describing a student with unmanageable behaviors, 59 teachers were asked to indicate the interventions they would employ with such a student. The intervention choices included those that the classroom teacher had primary responsibility (e.g., modify instructional materials), interventions suggesting shared responsibility (e.g., consult with principal), and those that the teacher had no responsibility in implementation (e.g., special education placement). Teachers rated highest those interventions that would provide them more information about the child (e.g., obtain achievement and individual IQ test scores) and teacher-directed interventions such as measuring students' progress to plan interventions, providing students feedback regarding classroom expectations, and planning contingency-management programs. Teachers rated lowest interventions such as tutoring, retention, and placement of the child in another class or into self-contained special education.

In Study 2, 105 teachers were asked their reasons for making referrals and the prereferral interventions they had attempted within the classroom. Teachers most often referred students for behavioral

problems and ranked such problems as the most important reason for referral. Prereferral interventions teachers attempted most often included specific behavioral techniques (i.e., positive or negative reinforcement), discussion/conference (i.e., child or parents), and instructional methods (i.e., techniques used to teach a academic lesson or affect behavior).

Discussion

It is evident that there is a national trend toward requiring prereferral intervention approaches (Carter & Sugai, 1989). Some educators think prereferral intervention is a viable option to more traditional service delivery approaches (Harrington & Gibson, 1986). The findings, overall, suggest that prereferral intervention reduces the number of students referred for formal assessment and then placed in special education. Such findings, however, appear to be inconsistent (see e.g., Graden, Casey, & Christenson, 1985). The findings also indicate that the strategies implemented under the prereferral intervention process produce the desired student performance. The prereferral intervention process also appears to increase the abilities of teachers to educate students who are difficult to teach and improves their attitudes (tolerance) toward such students. The importance of the latter findings is strengthened by reports that teachers' perceptions regarding the effectiveness of prereferral interventions are associated with classification rates (McCall, 1990).

It is important, however, to mention several caveats regarding such conclusions. With the exception of Fuchs and Fuchs (1989b, 1990), the pre- and quasi-experimental designs employed by the researchers failed to provide the control necessary to suggest causal claims. Unfortunately, with exception of Maher (in press), the researchers who employed such designs failed to fully evaluate the experiments for sources of invalidity. Although such evaluations are necessary to suggest causal claims under all experimental designs, they are essential to do so under pre- and quasi-experimental designs.

With notable exceptions (i.e., Fuchs & Fuchs, 1989b, 1990; Maher, in press), researchers failed to assess treatment fidelity. Such assessments would have served to clarify the impact of the prereferral intervention and would enable the replication of the interventions and associated effects across populations and programs. Treatment fidelity data would also serve to clarify whether (or not) a particular prereferral intervention approach is truly collaborative. Although scholars have debated this issue (e.g. Pugach & Johnson, 1989), close inspection of the intervention descriptions failed to substantiate whether a particular approach was collaborative or not.

In sum, the findings of this review provide a framework with which to direct future research. First, and most importantly, more examinations of the impact of prereferral intervention on students is needed. That is, both short-term and longitudinal comparative studies of the impact of prereferral intervention on students' academic and social performance relative to those students provided services under more traditional service delivery approaches are needed.

Future research should also identify the factors that affect the implementation of prereferral intervention. Factors such as administrative structures (i.e., resources, staffing, policies, and support), process variables (i.e., skills, roles, expectations, perceptions, and characteristics of educational professionals responsible for implementing the system), interventions (i.e., effectiveness and appropriateness of interventions for the regular classroom environment), and characteristics of students whose needs are best met with prereferral intervention approaches. Such investigations would provide important information with which to develop and refine prereferral intervention further. They would also provide information with which to develop pre-service and inservice training programs for educators.

More comparative research of the relative effects of individual program components included in prereferral intervention is also needed. Although each of the prereferral intervention approaches included multiple components, only Fuchs and Fuchs (1989b, 1990) attempted to document the relative contribution of each component. Such investigations would provide information with which to further understand the role of each component and develop prereferral intervention approaches that are most feasible.

There is also a need for scholars and researchers to address more fundamental questions associated with the claim for prereferral intervention. Questions such as "How does one give advice about how a prospective 'special education' student is to be treated until the question of whether (or not) there is a disability is resolved?" or

"How does one know if the student is handicapped until a multidisciplinary team as assessed his/her abilities?" need to be addressed. Questions associated with the administrative structure of prereferral intervention such as "Who (regular or special education) should control the prereferral intervention process?" also need to be addressed.

Finally, there is need to monitor and evaluate the effectiveness of state-wide prereferral intervention mandates. Such investigations would provide SEA officials information with which to monitor and facilitate the progressive refinement or termination of prereferral intervention policies. It was this latter need upon which the present study was formulated.

Purpose

The purpose of the present study was to evaluate the impact of the Utah State Board of Education's prereferral intervention mandate on special education service delivery patterns. The data were examined to assess the effect of the prereferral mandate on the proportions of students classified mildly handicapped (i.e., LD, BD, and IH), learning disabled, behaviorally disordered, and intellectually handicapped. The data were also examined to assess the effects of the prereferral mandate on rural/urban schools and high/low inservice training districts. Associated with this purpose, the study was designed to identify the (a) types of prereferral intervention procedures available in school districts, (b) extent to which the procedures were implemented by schools, (c) effectiveness of prereferral intervention

procedures for maintaining students with handicaps in regular education, and (d) types and adequacy of the prereferral intervention inservice training programs provided teachers. Further, LEA officials' perceptions regarding the prereferral intervention process were also examined.

Predictions

In light of the goals of the prereferral intervention mandate and supporting research (e.g., Graden, Casey, & Christenson, 1985), the following predictions were formulated. In relation to the dependent variables, it was expected that the proportions of students classified mildly handicapped, learning disabled, behaviorally disordered, and intellectually handicapped would decrease following the implementation of the prereferral mandate. In relation to the control variable, it was expected that the proportion of students classified severely intellectually handicapped would fail to do so. Comparisons of interest and specific predictions were the following dependent variables (1-4) and control variable (5):

1. Relative to pre-mandate, it was expected that the proportion of students classified mildly handicapped would decrease (i.e., statistically).

2. Relative to pre-mandate, it was expected that the proportion of students classified learning disabled would decrease.

3. Relative to pre-mandate, it was expected that the proportion of students classified behaviorally disordered would decrease.

4. Relative to pre-mandate, it was expected that the proportion of students classified intellectually handicapped would decrease.

5. Relative to pre-mandate, it was expected that the proportion of students classified severely intellectually handicapped would fail to decrease.

In light of the goals of the prereferral intervention mandate (e.g., Graden, Casey, & Christenson, 1985), and the lack of research to indicate otherwise, the following predictions were formulated regarding its effect on rural and urban school districts. In relation to the dependent variables, it was expected that the proportions of rural and urban students classified learning disabled, behaviorally disordered, and intellectually handicapped would decrease following the implementation of prereferral intervention mandate. In relation to the control variable, it was expected that the proportion of students classified severely intellectually handicapped would fail to do so. Thus the comparisons of interest and specific predictions were the following dependent variables (6-9) and control variable (10):

6. Relative to pre-mandate, it was expected that the proportions of rural and urban students classified mildly handicapped would decrease (i.e., statistically).

7. Relative to pre-mandate, it was expected that the proportions of rural and urban students classified learning disabled would decrease.

8. Relative to pre-mandate, it was expected that the proportions of rural and urban students classified behaviorally disordered would decrease.

9. Relative to pre-mandate, it was expected that the proportions of rural and urban students classified intellectually handicapped would decrease.

10. Relative to pre-mandate, it was expected that the proportions of rural and urban students classified severely intellectually handicapped would fail to decrease.

In light of the goals of the prereferral intervention mandate (e.g., Graden, Casey, & Christenson, 1985) and supporting research, the following predictions were formulated regarding the adequacy of inservice training provided teachers. In relation to the dependent variables, it was expected that the proportions of students classified mildly handicapped, learning disabled, behaviorally disordered, and intellectually handicapped would decrease more in those school districts that provided extensive prereferral (i.e., high) inservice training to teachers than those that failed to do so. In relation to the control variable, it was expected that the proportion of students classified severely handicapped would fail to be affected by inservice training. Thus, the comparisons of interest and specific predictions were the following dependent variables (11-14) and control variable (15):

11. Relative to pre-mandate, it was expected that the proportion of students classified mildly handicapped would show a greater decrease (i.e., statistically) in those districts that provided inservice training.

12. Relative to pre-mandate, it was expected that the proportion of students classified learning disabled would show a greater decrease in those districts that provided inservice training.

13. Relative to pre-mandate, it was expected that the proportion of students classified behaviorally disordered would show a greater decrease in those districts that provided inservice training.

14. Relative to pre-mandate, it was expected that the proportion of students classified intellectually handicapped would show a greater decrease in those districts that provided inservice training.

15. Relative to pre-mandate, it was expected that the proportions of students classified severely intellectually handicapped would fail to show a greater decrease in districts that provided inservice training and in those that failed to do so.

CHAPTER III

METHODS

Sample

The target population for the present study was public school districts in Utah. The accessible population for the study was the same and included all 40 school districts located in Utah. (See Appendix A for a list of the school districts.)

Dependent and Control Variables

The dependent and control variables for the analysis of the effect of the prereferral mandate included the average daily membership of students classified (a) mildly handicapped (i.e., learning disabled, behavior disordered, and intellectually handicapped), (b) learning disabled, (c) behavioral disordered, and (d) intellectually handicapped. The control variable was the average daily membership of students classified as severely intellectually handicapped. The dependent and control variables were redefined as a proportion of the total school population. The data were also examined across rural/urban and high/low prereferral intervention inservice training school districts.

Designs

Changes in a time-series design that coincide with the occurrence of an intervention may be presumed to be the effect of the intervention (Campbell & Stanley, 1963). However, this claim may be invalid. That is, events unrelated to the intervention may cause the series to change

at the point of intervention. In the present study, an ex post facto time-series analysis, the danger of historical invalidity is high. As a result, control variable conceptually related to the dependent variables but unaffected by an intervention was used to examine historical threats to the study. Because the prereferral mandate is hypothesized to reduce the numbers of students with mild handicaps (i.e., learning disabled, behavior disordered, and intellectually handicapped) served in special education (e.g., Pugach & Johnson, 1989), the number of students with severe intellectual handicaps should be unaffected, providing an indicator of the historical validity of the study.

Two interrupted time-series designs, employing a nonequivalent control variable, were employed to assess the effect of the prereferral mandate: A time-series with a nonequivalent control variable design (Glass et al., 1975) was used to examine the effect of the prereferral mandate while a multiple-group time-series with a nonequivalent control variable design (Glass et al., 1975) was used to assess the effect of the mandate on rural/urban schools and high/low prereferral intervention inservice training schools.

The notation employed is as follows: O represents the observation of a dependent variable, and X depicts an intervention into the sequence of observations. Because there were a number of dependent variables and, in two cases, a control variable, the dependent variables are subscripted as follows: the letters represent the dependent and control variables while the latter is separated by a dashed line; the first number represents a variable (e.g., 1=number of

students classified handicapped) while the second number represents time (i.e., observations).

Time series with a nonequivalent control variable design. This design was used to examine the effect of the prereferral mandate on each of the dependent variables and control variable (i.e., research questions 1-5). The control variable was employed to examine the potential effect of history. The design is diagrammed below.

OA1-1	OA1-2...OA1-11	X	OA1-12	OA1-13
OB2-1	OA2-2...OA2-11	X	OA2-12	OA2-13
OC3-1	OA3-2...OA3-11	X	OA3-12	OA3-13
OD4-1	OA4-2...OA4-11	X	OA4-12	OA4-13
OE1-1	OB1-2...OB1-11	X	OB1-12	OB1-13
	1978-1988		1989-1990	

Figure 1. Design used to examine the effect of the preferral mandate on the dependent variables and the control variable.

Multiple group with a nonequivalent control variable time-series design. This design was used to study the effect of the prereferral mandate on rural and urban school districts and on high- and low-inservice districts, (i.e., research questions 6-15). The control variable was employed to examine the potential effect of history. The design is diagrammed below (unit refers to group, e.g., rural and urban school districts).

	0A1-1	0A1-2...0A1-11	X 0A1-12	0A1-13
	0B2-1	0A2-2...0A2-11	X 0A2-12	0A2-13
Group 1:	0C3-1	0A3-2...0A3-11	X 0A3-12	0A3-13
	0D4-1	0A4-2...0A4-11	X 0A4-12	0A4-13
	0E1-1	0B1-2...0B1-11	X 0B1-12	0B1-13
	1976-1988			1989-1990

	0A1-1	0A1-2...0A1-11	X 0A1-12	0A1-13
	0B2-1	0A2-2...0A2-11	X 0A2-12	0A2-13
Group 2:	0C3-1	0A3-2...0A3-11	X 0A3-12	0A3-13
	0D4-1	0A4-2...0A4-11	X 0A4-12	0A4-13
	0E1-1	0B1-2...0B1-11	X 0B1-12	0B1-13
	1978-1988			1989-1990

Figure 2. Design used to study the effect of the prereferral mandate on rural and urban and on high- and low-inservice districts.

Data Analyses

Mean percentages and associated standard deviations were computed. The mean percentages and standard deviations were inspected to identify fluctuations in the data associated with the prereferral intervention mandate.

Chow tests using dummy variables (Gujartt, 1970) were then applied to the data collected under each of the designs to test the null hypotheses, and the probability levels were set at the .05 level. The dummy variable reflects the presence or absence of the intervention which is included in the regression equation. That is, a dummy variable is created in which the value 0 is assigned until some crucial moment comes (e.g., implementation of prereferral mandate), when it then is assigned the value 1. The tests were used to determine whether the variables differed significantly at post-mandate (e.g., mandate) relative to pre-mandate. A significant result (i.e., t-associated statistic) indicated that the profile (i.e., intercept and/or slope of the regression line) of the variables differed significantly from pre- to post-policy decision (e.g., pre- and post-mandate). In other words, the analysis answered the question whether the post-mandate observations were simply a continuation of the series or whether they had shifted up or down from the general level of the pre-mandate series.

Procedures

Data were obtained from the State Department of Education's archival records and a questionnaire completed by local education agency officials in charge of special education services. The archival data included the numbers of students receiving special education services; whereas the questionnaire data included information on the (a) types of prereferral intervention procedures available in school districts, (b) extent to which the procedures were implemented by

schools, (c) effectiveness of the procedures for maintaining students with handicaps in regular education, and (d) types and adequacy of the prereferral intervention inservice training programs provided teachers. The questionnaire data also included information on LEA officials' perceptions regarding the prereferral intervention process.

Archival data collection procedures. Data for each school district were obtained through a search of the State Department of Education's archival records. Yearly summaries of each school district's December 1 and average daily membership student counts across handicapping conditions and service delivery settings (i.e., resource and self-contained settings) were recorded. The obtained numbers across handicapping conditions were then redefined as proportions of the total school enrollment; whereas the obtained numbers across service delivery settings were redefined as proportions of the total number of students classified as handicapped.

Questionnaire data collection procedures. Questionnaires and stamped return envelopes were sent to all 40 LEA officials in charge of special education services under a cover letter. The content of the letter included an explanation of the purpose of the study and importance of their participation (see Appendix B). Respondents were allowed 3 weeks to complete and return the questionnaire. If questionnaires were not returned, a second letter and a copy of the first mailing were sent to those who failed to respond. The second letter indicated the importance of their participation and that another questionnaire was included in case they had overlooked or misplaced the original.

The questionnaire, composed of 18 items, was organized into three topical areas. Under the first area, respondents were asked to indicate whether (or not) the following prereferral intervention procedures were available (see Appendix C for a brief description of each procedure): Teacher Assistance Team (TAT) (as developed by Chalfant, Pysh, & Moultrie, 1979), Project R.I.D.E. (responding to individual differences in education) (as developed by Beck & Gabriel, 1988), Mainstream Assistance Team (MAT) (as developed by Fuchs & Fuchs, 1989a, 1989b, 1990), prereferral intervention consultation model (as developed by Graden, Casey, & Christenson, 1983), and collaborative peer problem solving (as developed by Pugach & Johnson, 1988). They were also asked to indicate any other available prereferral intervention procedures that were available. In addition, under each procedure, on 5-point Likert-type items, respondents were asked to indicate the percentage of schools that had implemented the procedure across individual districts (5=very frequently [90-100%], 4=frequently [50-89%], 3=occasionally [25-49%], 2=rarely [1-24%], and 1=none) and the extent to which it maintains students in the regular classroom (5=strongly agree to 1=strongly disagree, 3=undecided).

Under the second topical area, respondents were asked to indicate whether (or not) the following prereferral intervention inservice training programs were available: in-school, district-wide, shared inservice training with other districts, workshops, consultation, and other prereferral intervention inservice training programs that were available. They were also asked to indicate the adequacy of each

inservice training program on a 5-point Likert-type items (5=very good to 1=very poor, 3=undecided).

Finally, under the remaining topical area, respondents were asked to respond to six Likert-type items (5=strongly agree to 1=strongly disagree, 3=undecided) regarding the effectiveness of the prereferral intervention process. They also were asked to make any additional comments associated with the process.

CHAPTER IV

RESULTS

Overview of the Analyses

Correlational analyses were performed first to estimate the reliability of the December 1 and average daily membership student count data bases. A correlational analysis was also performed to determine the degree of association between the December 1 and average daily-membership student-count data bases. Second, analyses were performed to examine the assumptions (i.e., linearity, homogeneity of variance, normality, and independence of error) of the ordinary least squares regression procedure underlying the chow statistic used to test the null hypotheses. Third, the questionnaire data were examined to identify the (a) types of prereferral intervention procedures available in school districts, (b) extent to which the procedures were implemented by schools, (c) effectiveness of the procedures for maintaining students with handicaps in regular education, and (d) types and adequacy of prereferral intervention inservice programs provided teachers. The questionnaire data were also examined to determine LEA officials' perceptions regarding the prereferral intervention process. Fourth, descriptive statistics for the dependent and control variables were computed. Finally, chow tests employing dummy variables were applied to the data collected under each of the designs to test the null hypotheses.

Reliability and Degree of Association Between the December 1 and Average Daily Membership Data Bases

To estimate the reliability of the December 1 and average daily membership student count data bases, 120 cases (20%) were selected randomly from each data base and correlated with the original archival records. The obtained correlations were .98 and .99, respectively.

A correlational analysis was also performed to determine the degree of association between the December 1 and average daily membership student count data bases. Table 1 shows the correlations for each of the dependent and control variables. The obtained correlations were all statistically significant at the .001 level and ranged from .95 to .99. These findings indicate that the December 1 and average daily membership count data were associated highly. As a result, because only the average daily membership student count is verified by the State Department of Education, subsequent analyses were performed on the average daily membership student count data.

Assumptions of Ordinary Least Squares Regression Procedure

The assumptions of linearity (i.e., a linear association exists between the variables) and homogeneity of variance (i.e., the error variances of a series are constant across time) were examined by plotting the residuals against the predicted values. If the assumptions of linearity and homogeneity of variance are met, an association would fail to exist between the observed standardized residuals and predicted standardized values (Kmenta, 1986). Appendix D

presents the plots for each of the variables. Inspection of the plots shows that there were relatively unsystematic patterns between the residual and predicted values, indicating that the assumptions of linearity and homogeneity of variance were met.

Table 1

Association Between December 1 and Average Daily Membership Counts

	Variable	r
(1)	Mildly handicapped	.97^{xxx}
	Learning disabled	.97^{xxx}
	Behavior disordered	.98^{xxx}
	Intellectually handicapped	.96^{xxx}
	Severely intellectually handicapped	.95^{xxx}

[1] Learning disabled, behavior disordered, and intellectually handicapped.

^{xxx} $p < .001$

Another basic assumption of the ordinary least square regression procedure is normality (i.e., distribution of the residuals are normally distributed around zero). The assumption of normality was examined by plotting the observed distribution of residuals against those expected under the assumption of normality (i.e., cumulative probability plots). If the two distributions are identical, a straight

line would result (Fergusen, 1981). Appendix D shows the cumulative probability plots for each of the variables. Inspection of the plots indicates that the distribution of the errors was relatively normal.

Autocorrelation of the residuals (independence of error) is common in time-series analysis (i.e., an error series that is correlated with lagged values of itself). The autocorrelation of the errors were examined by calculating and plotting the autocorrelation functions for the different lags. In addition, Box-Ljung statistics were computed to test the statistical significance of the autocorrelations (i.e., whether the observed autocorrelation functions came from a population in which the autocorrelations were zero at all lags). If the errors are autocorrelated, then regression statistics may over or underestimate the influence of a variable (Kmenta, 1986). Appendix D presents the autocorrelations, plots of the residuals, as well as Box-Ljung statistics and associated probability levels. Inspection of the Box-Ljung statistics and associated probability levels indicates that the error series of 3 of the 4 variables (i.e., mildly handicapped, learning disabled, intellectually handicapped) were autocorrelated ($p < .05$). As a result, parallel analyses were conducted using ordinary least square regression and exact maximum-likelihood procedures. The exact maximum-likelihood procedure is designed to transform the regression equation to statistically remove the autocorrelation of the residuals. The results obtained under each procedure were then compared to examine the influence of the autocorrelation of the residuals.

Questionnaire

The respondents included 15 directors of special education, 11 supervisors or coordinators of special education, 2 special education consultants, and 9 who failed to identify their job title. The 37 respondents represented a return of 93 percent.

Table 2 presents the percentage of school districts in which each prereferral intervention procedure was available as well as the associated mean percentage of schools implementing the procedure and the mean rating of the extent to which it maintains students in the regular classroom. The frequency of responses associated with each item are presented in Appendix D. On average, 2.20 (SD=1.67) prereferral intervention procedures were available in each school district. Inspection of Table 2 reveals that Project R.I.D.E., TATs, and the prereferral intervention consultation models were available in 50 percent or more of the school districts, while collaborative peer problem-solving groups and MATs were available in relatively fewer districts. Consistent with these findings, more schools had implemented Project R.I.D.E., TATs, and the prereferral intervention models than MATs and collaborative peer problem-solving groups (see Table 2). In addition, other prereferral intervention procedures (e.g., system-wide assistance teams) were available in 30 percent of the school districts and were typically implemented in 25 to 49 percent of the schools in those districts offering such procedures. Inspection of Table 2 also reveals that respondents disagreed strongly that MATs would maintain students in regular education while they disagreed or

were undecided whether the remaining prereferral intervention procedures would maintain students in regular education.

Table 2

Prereferral Intervention Procedures

	Availability	Extent Implemented	Mean Rating of Effectiveness
TAT	55%	25 to 49%	2.44
Project R.I.D.E.	60%	25 to 49%	2.41
MAT	10%	1 to 25%	0.44
Prereferral Consultation Model	50%	25 to 49%	2.48
Peer Problem-Solving	15%	1 to 25%	2.71
Other	30%	25 to 49%	2.55

Table 3 presents the percentage of school districts that provided each of the prereferral intervention inservice training programs and the associated mean rating of the adequacy of the inservice program. The frequency of responses associated with each item are presented in Appendix D. School districts provided teachers, on average, 2.35 (SD=1.28; median=3.00) prereferral intervention inservice training programs. Inspection of Table 3 reveals that district-wide and workshop inservice programs were available in 48 and 35 percent of the districts, respectively; while in-school, shared, consultation, and other (e.g., collaboration among teachers) programs were available in

relatively fewer districts. Respondents' mean ratings of the adequacy of the prereferral intervention inservice programs ranged from average to good (see Table 3).

Table 3

Availability and Adequacy of Inservice Training

Type of Inservice Training	Availability	Mean Rating of Adequacy
In-school	57.5%	2.50
District	47.5%	2.86
Shared	22.5%	2.89
Workshops	35.0%	3.06
Consultation	27.5%	2.67
Other	25.0%	3.20

Table 4 presents the item content and associated mean rating of respondents' perceptions regarding the effectiveness of the prereferral intervention process. The frequency of responses associated with each item is presented in Appendix D. Inspection of Table 4 reveals that respondents were undecided regarding the extent to which the prereferral intervention process (a) benefits teachers, (b) is a bureaucratic hurdle, and (c) should be maintained, whereas they disagreed with items 2, 3, and 5 (i.e., teachers follow through with the process, teachers refer fewer students, and process maintains students in regular education, respectively).

Table 4

Effectiveness of Prereferral Intervention Process

	Mean Rating*
1. Teachers benefit from the process	2.82
2. Teachers follow through with the process	2.06
3. Teachers refer fewer students	2.25
4. Process is a bureaucratic hurdle	3.15
5. Process maintains students in the regular classroom	1.94
6. Process should be maintained	3.09

* Note: Questions are abbreviated

Descriptive Statistics

Figure 3 presents the mean percentages of students classified as mildly handicapped (LD, BD, and IH), learning disabled, behavior disordered, intellectually handicapped, and severely intellectually handicapped for the years 1978 to 1990. The mean percentages and associated standard deviations, as a percentage of total school enrollment, for students classified (a) mildly handicapped, (b) learning disabled, (c) behavior disordered, (d) intellectually handicapped, and (e) severely intellectually handicapped for the years 1978 to 1990 are presented in Table 5. As a percentage of total school enrollment, students classified mildly handicapped and learning disabled remained relatively constant from 1978 to 1983 (see Table 5).

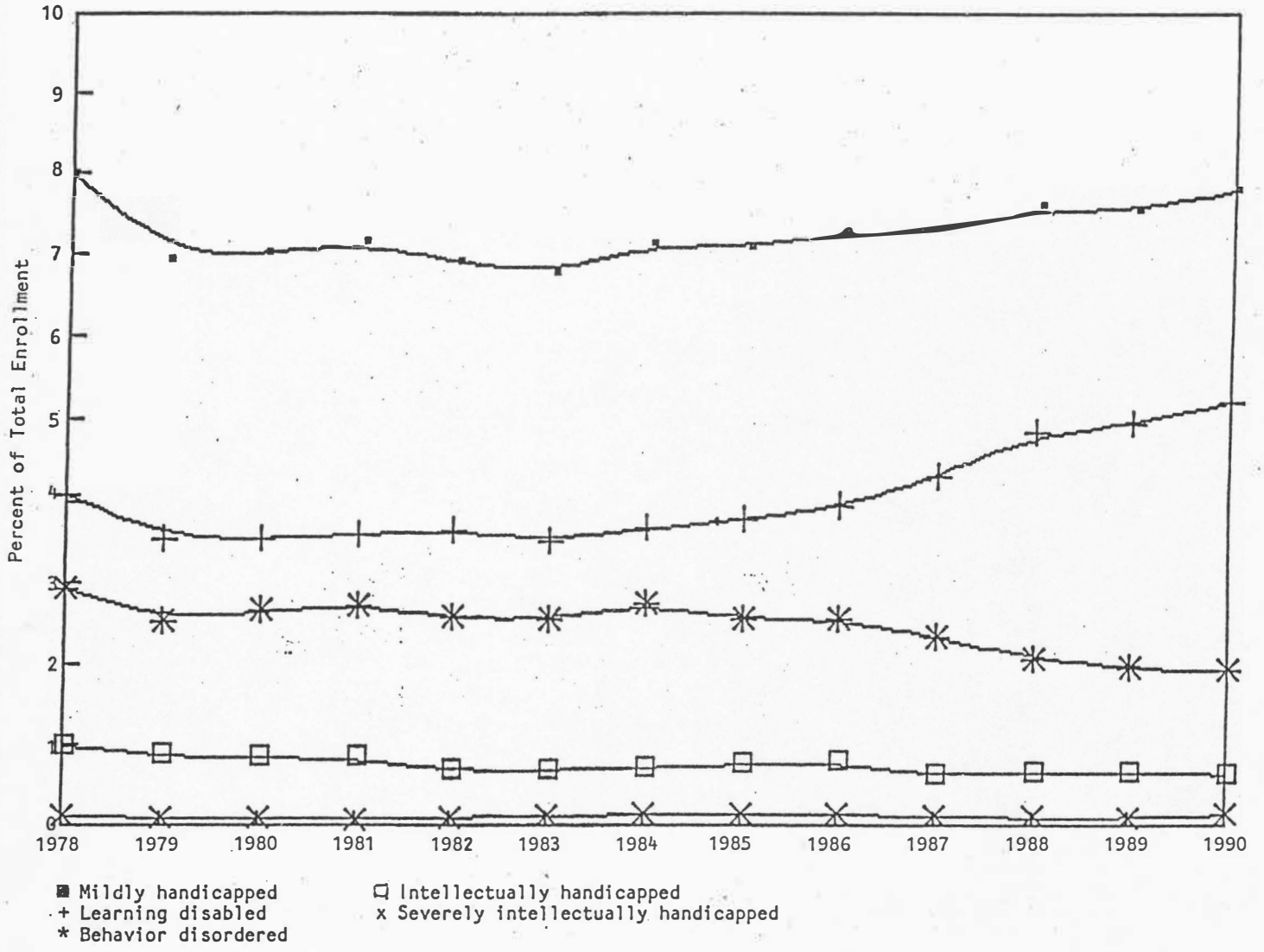


Figure 3. Percentage mildly handicapped, learning disabled, behavior disordered, intellectually handicapped, and severely intellectually handicapped.

Table 5

Students Classified as Handicapped as a Proportion of Total School Enrollment

Variable	78	79	80	81	82	83	84	85	86	87	88	89	90
Mildly handicapped	7.97	6.92	7.01	7.14	6.75	6.78	7.12	7.09	7.13	7.26	7.63	7.58	7.78
	(2.12)	(1.47)	(1.55)	(1.60)	(1.60)	(1.17)	(1.67)	(1.73)	(2.01)	(2.03)	(2.15)	(2.13)	(0.37)
Learning disabled	4.08	3.55	3.54	3.60	3.56	3.52	3.67	3.88	3.94	4.30	5.02	4.85	5.22
	(0.99)	(0.66)	(0.77)	(0.75)	(1.01)	(0.67)	(1.08)	(1.10)	(1.07)	(1.11)	(1.26)	(1.46)	(0.21)
Behavior disordered	2.92	2.51	2.64	2.72	2.52	2.57	2.74	2.54	2.44	2.34	1.95	2.07	1.91
	(1.34)	(1.04)	(1.05)	(1.05)	(0.84)	(0.78)	(0.86)	(0.93)	(1.06)	(1.11)	(1.22)	(1.34)	(0.20)
Intellectually handicapped	0.97	0.86	0.83	0.83	0.67	0.69	0.71	0.76	0.75	0.62	0.66	0.66	0.64
	(0.46)	(0.30)	(0.32)	(0.51)	(0.32)	(0.36)	(0.41)	(0.40)	(0.42)	(0.30)	(0.26)	(0.27)	(0.06)
Severely intellectually handicapped	0.12	0.08	0.09	0.07	0.09	0.12	0.14	0.15	0.14	0.10	0.10	0.10	2.30
	(0.17)	(0.10)	(0.11)	(0.10)	(0.14)	(0.13)	(0.19)	(0.16)	(0.15)	(0.14)	(0.11)	(0.13)	(0.24)

However, the percentage of such students showed an increase in 1984, followed by a decrease in 1985 and then an upward trend in subsequent years. In contrast, the percentage of students classified behaviorally disorder showed a downward trend, while the percentages of students classified intellectually handicapped and severely intellectually handicapped remained relatively constant (see Table 5).

Table 6 presents the mean percentages and associated standard deviations, as a proportion of the total number of students classified as handicapped, for students classified (a) learning disabled, (b) behavior disordered, (c) intellectually handicapped, and (d) severely intellectually handicapped from the years 1978 to 1990. Similarly, the mean percentages and associated standard deviations, as a percentage of the total number of students classified as handicapped, for such students served in resource and self-contained settings are presented in Tables 7 and 8, respectively.

Inspection of Table 6 reveals that, as a percentage of the total number of students classified handicapped, the overall percentage of students classified learning disabled and served in resource settings remained relatively constant until 1985; at which time, the percentage of such students showed a consistent upward trend; whereas the percentage of such students served in self-contained settings increased steadily (see Tables 7 and 8, respectively).

In contrast, the overall percentage of students classified behavior disordered and those served in resource room settings showed a relatively consistent downward trend (see Table 6 and 7, respectively). However, inspection of Table 8 reveals that the percentage of behavior

Table 6

Students Classified as Handicapped as a Proportion of Total Handicapped Students

Variable	78	79	80	81	82	83	84	85	86	87	88	89	90
Learning disabled	39.90	37.43	35.71	34.96	34.83	34.60	33.91	40.99	43.29	44.10	47.29	49.20	49.82
	(7.78)	(7.31)	(7.69)	(7.06)	(7.32)	(7.74)	(6.69)	(8.57)	(8.29)	(9.95)	(9.96)	(9.66)	(1.81)
Behavior disordered	26.99	25.42	25.70	25.53	24.31	24.63	25.09	27.10	26.08	22.75	19.53	17.83	16.95
	(9.21)	(7.63)	(7.71)	(6.81)	(5.96)	(5.88)	(5.87)	(7.95)	(8.37)	(8.89)	(8.21)	(8.28)	(1.42)
Intellectually handicapped	9.56	9.07	8.35	7.87	6.54	6.73	6.60	8.34	8.03	6.32	6.46	6.50	5.80
	(4.08)	(3.30)	(3.13)	(3.94)	(2.76)	(3.25)	(3.53)	(4.00)	(3.31)	(2.83)	(2.48)	(2.45)	(0.43)
Severely intellectually handicapped	1.19	0.86	0.96	0.69	0.89	1.17	1.21	1.57	1.56	1.07	1.11	1.01	1.34
	(1.65)	(1.09)	(1.14)	(0.91)	(1.37)	(1.28)	(1.47)	(1.46)	(1.68)	(1.53)	(1.28)	(1.15)	(0.22)

Table 7

Students Classified as Handicapped as a Proportion of Total Handicapped Students Served in Resource Settings

Variable	78	79	80	81	82	83	84	85	86	87	88	89	90
Learning disabled	39.90	36.03	33.99	32.83	32.57	32.02	31.43	37.28	39.29	39.82	42.81	43.85	43.40
	(7.78)	(7.40)	(7.79)	(6.92)	(7.02)	(7.38)	(7.07)	(9.22)	(9.70)	(11.32)	(10.87)	(9.65)	(1.68)
Behavior disordered	25.44	23.56	23.22	23.01	21.77	21.82	22.15	23.08	21.64	18.54	16.20	14.49	13.62
	(9.98)	(8.32)	(8.05)	(7.17)	(6.52)	(6.36)	(6.06)	(7.26)	(7.53)	(7.51)	(6.88)	(7.40)	(1.26)
Intellectually handicapped	5.84	4.49	4.35	4.38	3.05	3.11	3.05	3.66	3.09	2.55	2.22	2.19	2.06
	(4.05)	(3.17)	(2.95)	(4.36)	(2.60)	(2.46)	(3.41)	(3.92)	(2.94)	(2.62)	(2.01)	(1.92)	(0.32)
Severely intellectually handicapped	0.32	0.11	0.03	0.02	0.03	0.21	0.08	0.10	0.14	0.16	0.01	0.07	0.07
	(0.92)	(0.44)	(0.10)	(0.06)	(0.15)	(0.59)	(0.35)	(0.37)	(0.63)	(0.89)	(0.05)	(0.20)	(0.04)

Table 8

Students Classified as Handicapped as a Proportion of Total Handicapped Students Served in Self-Contained Settings

Variable	78	79	80	81	82	83	84	85	86	87	88	89	90
Learning disabled	0.00	1.39	1.72	2.13	2.27	2.58	2.48	3.71	4.00	4.28	4.48	5.35	6.42
	(0.00)	(2.10)	(2.14)	(2.20)	(2.61)	(2.70)	(2.66)	(3.50)	(3.38)	(3.14)	(3.07)	(3.91)	(0.88)
Behavior disordered	1.55	1.86	2.47	2.53	2.54	2.81	2.94	4.03	4.44	4.20	3.34	3.24	3.33
	(2.52)	(2.25)	(2.77)	(2.62)	(2.50)	(2.80)	(2.92)	(4.38)	(4.52)	(4.14)	(2.88)	(2.67)	(0.50)
Intellectually handicapped	3.71	4.59	4.00	3.49	3.49	3.62	3.56	4.68	4.93	3.77	4.23	4.31	3.74
	(3.61)	(3.43)	(2.94)	(2.70)	(2.80)	(2.88)	(2.66)	(3.20)	(3.58)	(2.36)	(2.39)	(2.07)	(0.39)
Severely intellectually handicapped	0.88	0.75	0.93	0.67	0.85	0.97	1.13	1.47	1.42	0.91	1.10	0.94	1.27
	(1.19)	(1.06)	(1.11)	(0.91)	(1.38)	(1.12)	(1.40)	(1.46)	(1.61)	(1.35)	(1.28)	(1.13)	(0.21)

disordered students served in self-contained settings showed a downward shift in 1985. Finally, inspection of Tables 7 and 8 reveals that the percentages of students classified intellectually handicapped and severely intellectually handicapped remained relatively constant across the resource and self-contained settings.

Prereferral Intervention Mandate

The analyses of the effect of the prereferral intervention mandate based on the ordinary least squares and exact maximum-likelihood regression estimation procedures are presented in Tables 9 and 10, respectively. The tables present the t values for the intercepts and slopes associated with each of the dependent and control variables for the total proportion of students classified as handicapped as well as for the proportions of those served in resource and self-contained settings. Comparison of Tables of 9 and 10 reveals that the estimation procedures yielded similar results, indicating that the autocorrelation of the residuals failed to influence the estimates of the effect of the prereferral intervention mandate.

Inspection of Table 9 or 10 shows, relative to pre-mandate (i.e., 1978 to 1988 compared to 1989 and 1990), that changes in the series profiles of the proportions of students classified (a) mildly handicapped, (b) learning disabled, (c) behavior disordered, (d) intellectually handicapped, and (e) severely intellectually handicapped (control variable) were statistically nonsignificant. These results fail to provide evidence to support the hypotheses associated with the prereferral intervention mandate.

Table 9

Analysis of the Effect of the Prereferral Intervention Mandate Based on the Least Squares Estimation Procedure

Dependent Variable	TOTAL				RESOURCE				SELF-CONTAINED			
	Intercept		Slope		Intercept		Slope		Intercept		Slope	
	t	P	t	P	t	P	t	P	t	P	t	P
Mildly handicapped[1]	1.298	P>.05	0.498	P>.05	-0.990	P>.05	0.254	P>.05	0.729	P>.05	0.600	P>.05
Learning disabled	1.914	P>.05	1.113	P>.05	0.073	P>.05	0.586	P>.05	0.205	P>.05	1.910	P>.05
Behavior disordered	-1.151	P>.05	-0.144	P>.05	-1.372	P>.05	-0.193	P>.05	0.119	P>.05	0.176	P>.05
Intellectually handicapped	-0.080	P>.05	-0.180	P>.05	-0.438	P>.05	0.178	P>.05	1.076	P>.05	-0.339	P>.05
Severely intellectually handicapped[2]	0.048	P>.05	0.074	P>.05	-1.529	P>.05	0.038	P>.05	0.626	P>.05	1.308	P>.05

[1]Learning disabled, behavior disordered, and intellectually handicapped.
[2]Control variable.

Table 10

Analysis of the Effect of the Prereferral Intervention Mandate Based on the Maximum-Likelihood Estimation Procedure

Dependent Variable	TOTAL				RESOURCE				SELF-CONTAINED			
	Intercept		Slope		Intercept		Slope		Intercept		Slope	
	t	P	t	P	t	P	t	P	t	P	t	P
Mildly handicapped[1]	-0.489	P>.05	0.497	P>.05	-0.235	P>.05	0.229	P>.05	-0.457	P>.05	0.484	P>.05
Learning disabled	-0.896	P>.05	0.936	P>.05	-0.482	P>.05	0.509	P>.05	-1.447	P>.05	1.496	P>.05
Behavior disordered	0.121	P>.05	-0.149	P>.05	0.160	P>.05	-0.192	P>.05	-0.154	P>.05	0.170	P>.05
Intellectually handicapped	0.161	P>.05	-0.173	P>.05	-0.115	P>.05	0.094	P>.05	0.301	P>.05	0.294	P>.05
Severely intellectually handicapped[2]	-1.022	P>.05	1.050	P>.05	-0.041	P>.05	0.033	P>.05	-1.272	P>.05	1.282	P>.05

[1]Learning disabled, behavior disordered, and intellectually handicapped.
[2]Control variable.

The analyses of the effect of the prereferral intervention mandate on rural/urban and high/low prereferral intervention school districts based on the ordinary least squares and exact maximum-likelihood regression estimation procedures are presented in Tables 11 and 12, respectively. Comparison of Tables 11 and 12 reveals that the estimation procedures yielded similar results, indicating that the autocorrelation of the residuals failed to influence the estimates of the effect of community type or degree of inservice training. Respectively, the tables present the t values for the intercepts and slopes associated with each of the dependent and control variables. Inspection of Tables 11 and 12 reveals that the series profiles of the proportion of students classified (a) mildly handicapped, (b) learning disabled, (c) behavior disordered, (d) intellectually handicapped, and (e) severely intellectually handicapped (control variable) were uninfluenced by the school districts' community type (rural/urban) or by the degree of prereferral intervention inservice training. These results fail to provide evidence indicating that the prereferral intervention mandate had a differential effect on rural/urban and high/low prereferral intervention inservice school districts.

Table 11

Ordinary Least Squares Analysis of the Effect of the Prereferral Intervention on Rural/Urban and High/Low Inservice Districts

	Rural/Urban Districts		High/Low Inservice Districts	
Variable	Intercept (T)	Slope (T)	Intercept (T)	Slope (T)
Mildly handicapped[1]	0.49	0.47	0.40	-0.25
Learning disabled	1.51	0.95	0.99	-0.28
Behavior disordered	-1.44	-0.14	-1.34	-0.28
Intellectually handicapped	-0.46	-0.46	0.42	0.20
Severely intellectually handicapped	0.37	-0.01	-0.76	-0.06

[1] Learning disabled, behavior disordered, and intellectually handicapped

Note: None of the (T) values were significant at the .05 level.

Table 12

Exact Maximum Likelihood Estimation Analysis of the Effect of the Prereferral Mandate on Rural/Urban and High/Low Inservice Districts

	Rural/Urban Districts		High/Low Inservice Districts	
Variable	Intercept (T)	Slope (T)	Intercept (T)	Slope (T)
Mildly handicapped[1]	-0.47	0.48	0.35	-0.33
Learning disabled	-0.94	0.96	0.34	-0.30
Behavior disordered	0.13	-0.14	0.24	-0.26
Intellectually handicapped	0.05	-0.06	-0.19	0.20
Severely intellectually handicapped	0.01	-0.01	-0.04	-0.05

[1] Learning disabled, behavior disordered, and intellectually handicapped

Note: None of the (T) values were significant at the .05 level.

CHAPTER V

CONCLUSION

The primary purpose of the present study was to evaluate the impact of the Utah State Board of Education's prereferral intervention mandate on the proportions of students classified mildly handicapped (i.e., LD, BD, and IH), learning disabled, behavior disordered, and intellectually handicapped. In addition, the study was designed to identify the (a) types of prereferral intervention procedures available in school districts, (b) extent to which the procedures were implemented by schools, (c) effectiveness of the prereferral intervention procedures for maintaining students with handicaps in regular education classrooms, and (d) types and adequacy of the prereferral intervention inservice training programs provided teachers. LEA officials' perceptions regarding the prereferral intervention process were also examined.

Because the policy decision under study was implemented state-wide prior to this evaluation effort, the use of a true experimental designs, with randomly assigned control groups, was unfeasible. Even if a true experimental design were possible, experts in research methodology have pointed out that the pattern of "observation-treatment-observation of change" associated with such a design is seldom appropriate for the task of monitoring or evaluating the often subtle effect of institutional policy decisions. Thus two time-series designs and associated data analysis technique were employed to study the effects of the policy decision on special education service

delivery patterns. Although such designs are routinely applied extensively in business and economics, SEAs have failed to regularly employ this methodology in policy evaluations. As a result, although no formal study was conducted, the utility of the time-series designs and associated data analysis technique for conducting such evaluations was also of interest.

Prereferral Intervention Mandate

The prereferral intervention mandate was an adjustment by the Utah State Office of Education to perceived problems associated with the referral, assessment, and placement processes mandated by Public Law 94-142. The prereferral intervention mandate was based on the assumption that a majority of students' social and academic problems can be resolved by regular education teachers employing interventions available within the regular education environment. Prereferral intervention procedures are designed to reduce inappropriate placements in special education. Thus such procedures should have the greatest impact on the numbers of students classified mildly handicapped.

Contrary to expectations, Utah's prereferral intervention mandate, as implemented, failed to reduce the proportions of students classified (a) mildly handicapped, (b) learning disabled, (c) behavior disordered, and (d) intellectually handicapped. Also unexpected, prereferral inservice training failed to exert a systematic influence on the proportions of such students. As expected the mandate failed to differentially effect rural and urban school districts and reduce the

proportions of students classified as severely intellectually handicapped (control variable).

The findings of the survey indicated that LEAs have implemented a variety of prereferral intervention procedures. However, within school districts, the number of schools implementing the procedures varied. LEA officials were also uncertain whether the prereferral intervention procedures were effective or whether they should be maintained. In addition, contrary to previous findings (e.g., Fuchs & Fuchs, 1989a, 1989b), LEA officials indicated that teachers fail to benefit (i.e., improve their abilities to teach difficult to teach students) from the prereferral intervention process. Also contradicting previous findings (Harrington & Gibson, 1986), officials were also uncertain whether the process is a bureaucratic hurdle and whether it should be maintained.

Inconsistent with researchers' reports (e.g., Graden et al., 1983), the prereferral intervention mandate apparently failed to produce the desired effect on Utah's service delivery patterns. Perhaps, based on the results of the survey, school districts have not fully implemented prereferral intervention procedures across schools. That is, such an effect may have resulted from the present study being conducted prematurely. These findings (or lack of) may also be a function of LEA officials failure to establish the administrative structure necessary to successfully implement the prereferral intervention process. Although the prereferral intervention mandate should ultimately result in a small decrease in the growth of special education costs by reducing the number of inappropriate referrals and then placements in special education, such an effect would not be

expected to occur immediately. Thus it may be necessary for the SEA to provide start-up funds to districts in order to successfully implement mandated prereferral intervention procedures. Finally, the findings may reflect educators concern regarding the concept of prereferral intervention. That is, educators may fail to implement prereferral intervention procedures because they think that to ignore the diagnostic process would increase the risk of false negatives.

It is, however, important to note that because the present study examined the effect of the prereferral intervention mandate at a state-level such conclusions are delimited to such a level. That is, outcome evaluations at the school-level may provide evidence to support the hypotheses associated with the prereferral mandate.

These findings (or lack of) highlight education officials and scholars' apparent lack of understanding regarding the factors that influence the successful implementation of prereferral intervention procedures and the need for further research. Research is needed to disclose the process variables (i.e., skills, roles, expectations, perceptions, and characteristics of educational professional responsible for implementing the procedures), interventions (i.e, effectiveness and appropriateness of interventions for regular classroom settings), and characteristics of students whose needs can be met by the prereferral intervention process. To do so, researchers should attempt to identify schools that have successfully implemented prereferral intervention procedures and then attempt to identify the factors associated with such implementations. The findings also highlight the need for SEA officials to monitor and evaluate

administrative decisions such as the prereferral intervention mandate. Such analyses will provide officials information ongoing information with which to facilitate the progressive refinement or termination of educational policy decisions.

There is also a need for scholars and researchers to address more fundamental questions associated with the claim for prereferral intervention. Questions such as How does one give advice about how a prospective "special education" student is to be treated until the question of whether (or not) there is a disability is resolved? How does one know if the students is handicapped until a multidisciplinary team has assessed his (or her) abilities? To ignore the diagnostic process may increase the risk of false negatives. Clearly, such an outcome would contradict the claim for prereferral intervention.

Utility of Time-Series Design

When SEAs or other administrative units initiate a policy it is put into effect across the board, with the total unit being affected. In this setting the only comparison base is the record of previous years. The usual methodology, a one-group pre- and posttest design, employed in evaluations of administrative decisions is weak at best (see Campbell & Stanley, 1963, for a discussion of the weakness). However, the greatest weakness of the one-group pre- and posttest design is its inability to provide information regarding the instability of the data even when no intervention is being applied. The degree of this normal instability is a crucial issue in understanding the impact of policy decisions. As a result, experts in

research methodology have recommended that officials employ time-series designs and associated data analysis techniques in policy evaluations.

Because such designs provide a sampling of this instability, more accurate interpretations of the treatment effects can be made. That is, data spanning a number of years are used to estimate the expected effect in the absence of the treatment. By comparing the actual effect to the expected effect, an estimate of the treatment is obtained, based on the assumption that the estimates are still valid once the treatment has taken place.

The present study provides an illustration of the importance of accounting for the instability of data when monitoring and evaluating educational policy decisions and of the utility of time-series designs for such evaluations. For example, employing a one-group pretest (1985) and posttest (1986) design to analyze the effect of the level system of funding on the total proportion of students receiving special education services would have caused SEA officials to inaccurately conclude that the system had reduced the proportion of such students. In contrast, the time-series design showed that the proportion of students receiving special education services remained relatively constant from 1978 to 1983. However, the proportion of such students showed an increase in 1984, followed by a decrease in 1985 and then a constant upward trend in subsequent years. The results of the associated analysis technique revealed that the upward trend in the proportion of students classified as handicapped was statistically significant. This illustration highlights the need to account for the instability in the data when evaluating educational policy decisions.

It also highlights the utility of such designs and associated data analysis techniques for monitoring or evaluating educational policy decisions. Although not without problems (e.g., changes in the data over time), time-series designs are capable of providing more complete information with which to refine or terminate administrative decisions. It is important to note that in the present study relatively few problems (see methods section) were encountered.

REFERENCES

Algozzine, B., Christenson, S., & Ysseldyke, J. (1982). Probabilities associated with the referral to placement process. Teacher Education and Special Education, 5, 19-23.

Beck, R., & Gabriel, S. (1988). Project R.I.D.E. (Responding to individual differences in education). Great Falls, MT: Great Falls Public Schools.

Box, G. E., & Jenkins, G. M. (1970). Time-series analysis: Forecasting and control. San Francisco: Holden Day.

Campbell, T. D. (1969). Reforms as experiments. American Psychologist, 24, 409-429.

Campbell, T. D., & Stanley, C. J. (1963). Experimental and quasi-experimental designs for research. London: Houghton Mifflin.

Carter, J., & Sugai, G. (1989). Survey on prereferral practices: Responses from state departments of education. Exceptional Children, 55(4), 298-302.

Chalfant, J. C., Pysh, M. V., & Moultrie, R. (1979). Teacher assistance teams: A model for within building problem solving. Learning Disabilities Quarterly, 2, 85-96.

Evan, R. (1990). Making mainstreaming work through prereferral consultation. Educational Leadership, 48, 73-78.

Ferguson, G. A. (1981). Statistical analysis in psychology and education. St. Louis, MO: McGraw-Hill.

Fuchs, D. (1989, April). An experimental approach to economizing innovation: Mainstream assistance teams. Invited address, Division

for Research, presented at the annual meeting of the Council for Exceptional Children, San Francisco.

Fuchs, D., & Fuchs, L. (1989a). Prereferral intervention through teacher consultation: Mainstream assistance teams. Nashville, TN: Peabody College of Vanderbilt University. (ERIC Document No. ED 306726)

Fuchs, D., & Fuchs, L. (1989b). Exploring effective and efficient prereferral interventions: A component analysis of behavioral consultation. School Psychology Review, 18, 260-279.

Fuchs, D., & Fuchs, L. (1990). Prereferral intervention: A prescriptive approach. Exceptional Children, 56, 493-513.

Glass, G. V., Willson, V. L., & Gottman, J. M. (1975). Design and analysis of time-series experiments. Boulder, CO: Colorado University Associated Press.

Gottman, J. M., McFall, R. M., & Barnett, J. T. (1969). Design and analysis of research using time-series. Psychological Bulletin, 72, 299-306.

Grabner, J., & Dobbs, S. (1984). A team approach to problem solving in the classroom. Phi Delta Kappan, 66, 138-141.

Graden, J. L. (1989). Redefining "prereferral intervention" as intervention assistance: Collaboration between general and special education. Exceptional Children, 56, 227-231.

Graden, J. L., Casey, A., & Bonstrom, O. (1983). Prereferral interventions: Effects on referral rates and teacher attitudes (Report No. IRLD-RR-140). Minneapolis, MN: Minnesota University

Institute for Research on Learning Disabilities. (ERIC Document No. ED 162 451)

Graden, J. L., Casey, A., & Bonstrom, O. (1985). Implementing a prereferral intervention system. Part I: The model. Exceptional Children, 51, 377-384.

Graden, J. L., Casey, A., & Christenson, S. L. (1985). Implementing a prereferral intervention system. Part II: The data. Exceptional Children, 51, 487-496.

Gujartt, D. (1970). Use of dummy variables in testing for equality between sets of coefficients in two linear regressions: A note. American Statistician, 3, 50-52.

Harrington, R. G., & Gibson, E. (1986). Preassessment procedures for learning disabled children: Are they effective? Journal of Learning Disabilities, 19, 538-541.

Kmenta, J. (1986). Elements of econometrics. New York: Macmillian.

Maher, C. A. (in press). Providing pre-referral support services to regular classroom teachers: The Teacher Resource Team. Education and Treatment of Children.

Maher, C. A., & Bennet, R. E. (1984). Planninig and evaluating special education services. Englewood Cliffs, NJ: Prentice Hall.

Maher, C. A., & Illback, R. J. (1985). Implementing school psychological service programs: Descriptions and application of the DURABLE approach. Journal of School Psychology, 23, 81-89.

McCall, R. (1990, April). Effects of availability, extent of use, and teachers' perceived effectiveness of prereferral interventions on classification rates of mildly handicapped students in school

districts in the Commonwealth of Pennsylvania. Paper presented at the annual American Educational Research Association meeting, Boston.

McGlothlin, J. E. (1981). The school consultation committee: An approach to implementing a teacher consultation model. Behavioral Disorders, 6, 101-107.

Ponti, C. R., Zins, J. E., & Graden, J. L. (1988). Implementing a consultation-based service delivery system to decrease referrals for special education: A case study of organizational considerations. School Psychology Review, 17, 89-100.

Pugach, M., & Johnson, L. J. (1988). Peer collaboration: Enhancing teacher problem-solving capabilities for students at risk. Paper presented at the Annual Meeting, American Educational Research Association, New Orleans. (ERIC Document No. SP 030114)

Pugach, M., & Johnson, L. J. (1989). Prereferral interventions: Progress, problems, and challenges. Exceptional Children, 56, 217-226.

Sevick, B. M., & Ysseldyke, J. E. (1986). An analysis of teachers' prereferral interventions for students exhibiting behavioral problems. Behavioral Disorders, 11, 109-117.

Tombari, M., & Davis, R. A. (1979). Behavioral consultation. In G. D. Phye & D. J. Reschly (Eds.), School psychology perspectives and issues (pp. 281-307). New York: Academic Press.

Ysseldyke, J. E., Pianta, B., Christenson, S., Wang, J., & Algozzine, B. (1983). An analysis of prereferral interventions. Psychology in the Schools, 20, 184-190.

Zins, J. E., Graden, J. L., & Ponti, C. R. (1988). Prereferral interventions to improve special services delivery. Special Services in the Schools, 4, 109-130.

APPENDIX A

UTAH SCHOOL DISTRICTS

Table 13

List of Utah School Districts

	District	Urban/Rural	High/Low Inservice
01	Alpine	Rural	High
02	Beaver	Rural	High
03	Box Elder	Rural	High
04	Cache	Rural	High
05	Carbon	Rural	Low
06	Daggett	Rural	High
07	Davis	Urban	High
08	Duchesne	Rural	----
09	Emery	Rural	----
10	Garfield	Rural	----
11	Grand	Rural	Low
12	Granite	Urban	High
13	Iron	Rural	Low
14	Jordan	Urban	High
15	Juab	Rural	High
16	Kane	Rural	Low
17	Millard	Rural	High
18	Morgan	Urban	Low
19	Nebo	Urban	High
20	North Sanpete	Rural	Low
21	North Summit	Rural	Low

(table continues)

Table 13 continued

	District	Urban/Rural	High/Low Inservice
22	Park City	Urban	High
23	Piute	Rural	High
24	Rich	Rural	Low
25	San Juan	Rural	High
26	Sevier	Rural	Low
27	South Sanpete	Rural	Low
28	South Summit	Rural	Low
29	Tintic	Rural	High
30	Tooele	Rural	Low
31	Uintah	Rural	----
32	Wasatch	Urban	High
33	Washington	Rural	Low
34	Wayne	Rural	High
35	Weber	Urban	Low
36	Salt Lake	Urban	Low
37	Ogden	Urban	High
38	Provo	Urban	High
39	Logan	Rural	High
40	Murray	Urban	Low

APPENDIX B

COVER LETTER FOR QUESTIONNAIRE

TO: Directors of Special Education

FROM: Ken Reavis and Ron Nelson

SUBJECT: Prereferral Mandate Evaluation Study

DATE: May 18, 1990

As noted in an earlier memo, the Utah State Office of Education and Utah State University are conducting an evaluation of the prereferral mandate. We are interested in examining the impact of the mandate on special education service delivery patterns (i.e., numbers of students referred and then placed in special education). The results are expected to provide information with which to facilitate the refinement of the prereferral mandate. The results are also expected to have an impact on improving services to students who are not succeeding within regular education programs.

In order to improve the validity of the study, we are including all of the school districts so your participation is a vital part of the study. Your participation will require that you only complete the attached questionnaire (estimated time to complete is 20-30 minutes).

Please complete the questionnaire and send to

Prereferral Intervention Mandate
Technology Division
Utah State University
Logan, UT 84322-6800

A self-addressed envelope is provided.

If you should have any questions, call Ken Reavis at 538-7709 or Ron Nelson at 750-1663. Thank you for your cooperation.

APPENDIX C

QUESTIONNAIRE

UTAH STATE OFFICE OF EDUCATION

AND

UTAH STATE UNIVERSITY

COLLABORATIVE STUDY OF UTAH'S PREREFERRAL INTERVENTION MANDATE

Directions

1. Please complete all four sections of the checklist.

   A. Prereferral Intervention Procedure(s) Implemented.

   B. Effectiveness of the Prereferral Intervention Process.

   C. Availability and Adequacy of Prereferral Inservice Training.

   D. Comments:

2. Please complete the checklist and return no later than June 15, 1990

to

Prereferral Intervention Mandate
Technology Division
Utah State University
Logan, UT 84322-6800

A self-addressed envelope is provided

Name_____

School District_____

A. PREREFERRAL INTERVENTION PROCEDURE(S) IMPLEMENTED

Directions

1. In the first column, indicate if the prereferral intervention procedure is available or not available.

2. Use the remaining columns to check the extent that each available prereferral intervention procedure is used.

   Extent Used:

   A. Very frequently (used by ninety percent or more (90-100%) of the schools in the district).
   B. Frequently (used by fifty to ninety percent (50-89%) of the schools in the district).
   C. Occasionally (used by twenty-five to forty-nine percent (25-49%) of the schools in the district).
   D. Rarely (used by less than twenty-five percent (1-24%) of the schools in the district).
   E. Never used. (Prereferral intervention procedure is not used by any schools in the district.)

3. If available, indicate the approximate month and year the prereferral intervention procedure was implemented.

4. Next, if available use the columns to indicate the extent to which you think the prereferral intervention procedure benefits students.

   Extent of Agreement:

   1. Strongly agree (you agree strongly with the statement).
   2. Agree (you agree moderately with the statement).
   3. Undecided (you are undecided about the statement).
   4. Disagree (you disagree moderately with the statement).
   5. Strongly Disagree (you disagree strongly with the statement).

5. If available, describe the organizational structure of the prereferral procedure (i.e., jobtitle(s) and role(s)).

Prereferral Interventions

1. Teacher Assistance Team: Peer problem-solving group, consisting of teachers elected by the faculty with the referring teacher being a member, provides assistance to classroom teachers. (Not to be confused with the more traditional multidisciplinary team.)

		Extent Used BY Schools In The District				
Available	Not Available	Very Freq (90-100%)	Freq (50-89%)	Occ (25-49%)	Rarely (1-24%)	Not
____	____	____	____	____	____	____

Date Implemented MO. _____ YR. _____

The procedure maintains students in regular education.

Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree
____	____	____	____	____

Organizational Structure: _____

_____

_____

2. Project R.I.D.E. (Responding to Individual Differences in Education): A staff development program designed to assist teachers in accommodating individual student differences. Project R.I.D.E. includes a computer tactics bank, video library, and building-level support team (School Wide Assistance Team).

		Extent Used BY Schools In The District				
Available	Not Available	Very Freq (90-100%)	Freq (50-89%)	Occ (25-49%)	Rarely (1-24%)	Not
____	____	____	____	____	____	____

Date Implemented MO. _____ YR. _____

The procedure maintains students in regular education.

Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree
____	____	____	____	____

Organizational Structure: _____

_____

_____

_____

3. Mainstream Assistance Team: A consultant guides the referring teacher through a succession of structured meetings (i.e.,problem identification, problem analysis, plan implementation, and problem evaluation).

Available	Not Available	Extent Used BY Schools In The District: Very Freq (90-100%)	Freq (50-89%)	Occ (25-49%)	Rarely (1-24%)	Not
____	____					

Date Implemented MO. _____ YR. _____

The procedure maintains students in regular education.

Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree
____	____	____	____	____

Organizational Structure: _____
_____
_____
_____

4. Consultation Model: Consultant is assigned by the school's administration to provide assistance (i.e., consultation, observation, and conference) to classroom teachers.

Available	Not Available	Extent Used BY Schools In The District: Very Freq (90-100%)	Freq (50-89%)	Occ (25-49%)	Rarely (1-24%)	Not
____	____					

Date Implemented MO. _____ YR. _____

The procedure maintains students in regular education.

Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree
____	____	____	____	____

Organizational Structure: _____
_____
_____
_____

5. Peer Problem-Solving: A peer is assigned to assist the referring teacher to clarify classroom problems, generate potential interventions, and develop a plan to evaluate the effectiveness of the intervention(s).

Extent Used BY Schools In The District

Available	Not Available	Very Freq (90-100%)	Freq (50-89%)	Occ (25-49%)	Rarely (1-24%)	Not
____	____	____	____	____	____	____

Date Implemented MO. _____ YR. _____

The procedure maintains students in regular education.

Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree
____	____	____	____	____

Organizational Structure: _____

_____

_____

_____

6. Other prereferral procedures (describe):

_____

_____

Extent Used BY Schools In The District

Available	Not Available	Very Freq (90-100%)	Freq (50-89%)	Occ (25-49%)	Rarely (1-24%)	Not
____	____	____	____	____	____	____

Date Implemented MO. _____ YR. _____

The procedure maintains students in regular education.

Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree
____	____	____	____	____

Organizational Structure: _____

_____

_____

_____

B. Effectiveness of the Prereferral Intervention Process

Directions

1. Use the columns to check the extent to which you agree with the statement.

Extent of Agreement:

1. Strongly agree (you agree strongly with the statement).
2. Agree (you agree moderately with the statement).
3. Undecided (you are undecided about the statement).
4. Disagree (you disagree moderately with the statement).
5. Strongly Disagree (you disagree strongly with the statement).

Prereferral Intervention Process

1. Regular classroom teachers benefit from the prereferral process.

Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree
_____	_____	_____	_____	_____

2. Regular classroom teachers follow through with the prereferral process.

Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree
_____	_____	_____	_____	_____

3. Regular classroom teachers refer fewer numbers of students as a result of the prereferral process.

Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree
_____	_____	_____	_____	_____

4. The prereferral process is a bureaucratic hurdle.

Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree
_____	_____	_____	_____	_____

5. The prereferral process maintains difficult to teach students in the regular classroom.

Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree
_____	_____	_____	_____	_____

6. The prereferral process should be maintained.

Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree
_____	_____	_____	_____	_____

C. Availability and Adequacy of Prereferral Intervention Inservice Training

Directions

1. In the first column, use a checkmark to indicate the if the prereferral intervention inservice training program was available or not available.

2. Use the remaining columns to check the adequacy of each available prereferral intervention inservice training program.

Adequacy of Inservice Training

1. Very Good (inservice training was excellent).
2. Good (inservice training was above average).
3. Average (inservice training was average).
4. Poor (inservice training was below average).
5. Very Poor (inservice training was extremely poor).

Prereferral Intervention Inservice Training

1. In-school prereferral intervention inservice was

		Adequacy				
Available	Not Available	Very Good	Good	Average	Poor	Very Poor
____	____	____	____	____	____	____

2. District wide prereferral intervention inservice was

		Adequacy				
Available	Not Available	Very Good	Good	Average	Poor	Very Poor
____	____	____	____	____	____	____

3. Shared prereferral intervention inservice training with other districts was

		Adequacy				
Available	Not Available	Very Good	Good	Average	Poor	Very Poor
____	____	____	____	____	____	____

4. Workshops and/or conferences on prereferral intervention at: _____ was/were

		Adequacy				
Available	Not Available	Very Good	Good	Average	Poor	Very Poor
____	____	____	____	____	____	____

5. Consultation on prereferral intervention by (i.e., agency): _____ was

		Adequacy				
Available	Not Available	Very Good	Good	Average	Poor	Very Poor
____	____	____	____	____	____	____

6. Other source(s) of prereferral intervention training (describe): _____ was/were

		Adequacy				
Available	Not Available	Very Good	Good	Average	Poor	Very Poor
____	____	____	____	____	____	____

E. Comments

Identify a school (if any) that has done an excellent job of implementing prereferral intervention procedures. _____

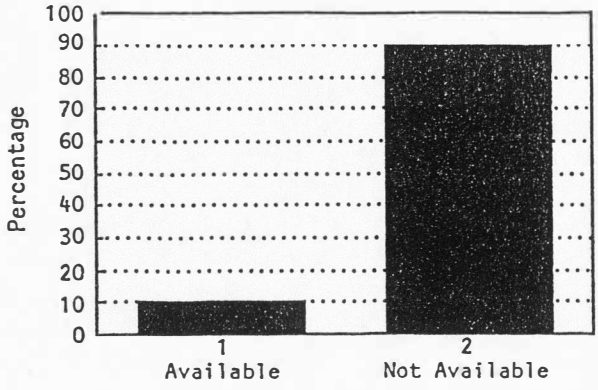
_____

We would also appreciate your comments regarding the prereferral intervention process or other factors that you think may have influenced the numbers of students classified as handicapped in your district (e.g., at-risk programs and LD classification program).
Comments:

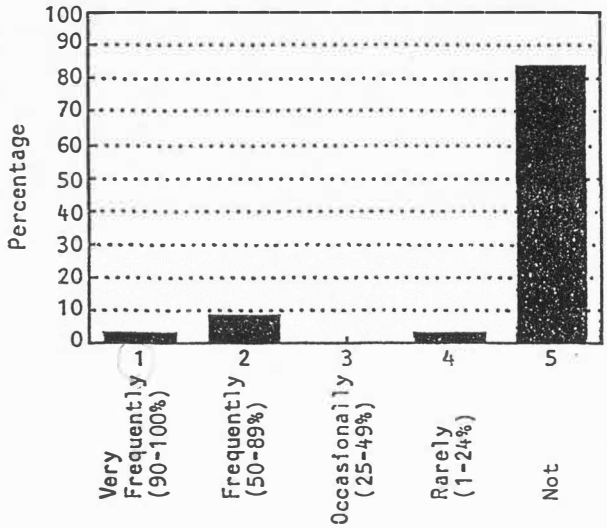
APPENDIX D

FREQUENCY OF RESPONSES

Availability of Mainstream Assistance Team



Extent Mainstream Assistance Team is Used



Mainstream Assistance Team Maintains Students in Regular Classrooms

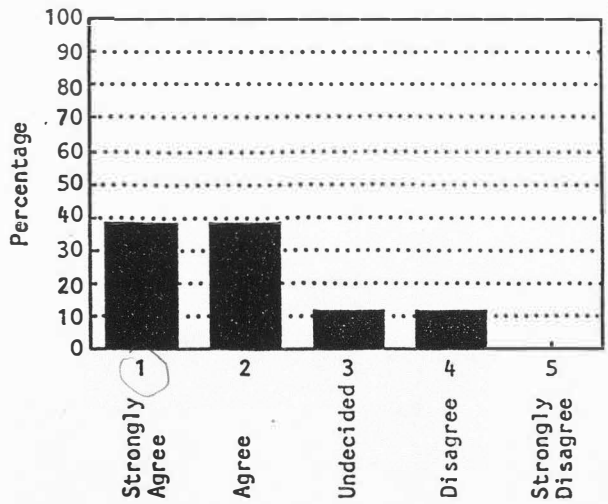
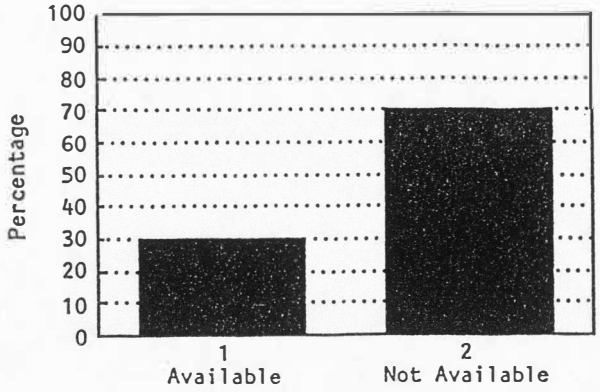
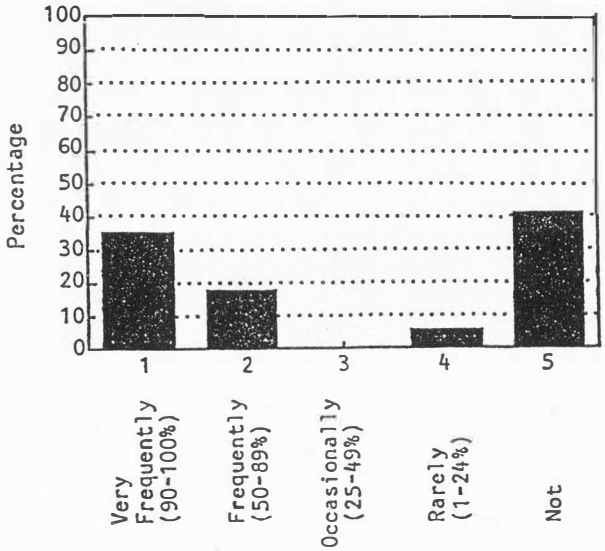


Figure 4. Frequency of responses for Mainstream Assistance Team.

Availability of Mainstream Assistance Team



Extent Mainstream Assistance Team is Used



Mainstream Assistance Team Maintains Students in Regular Classrooms

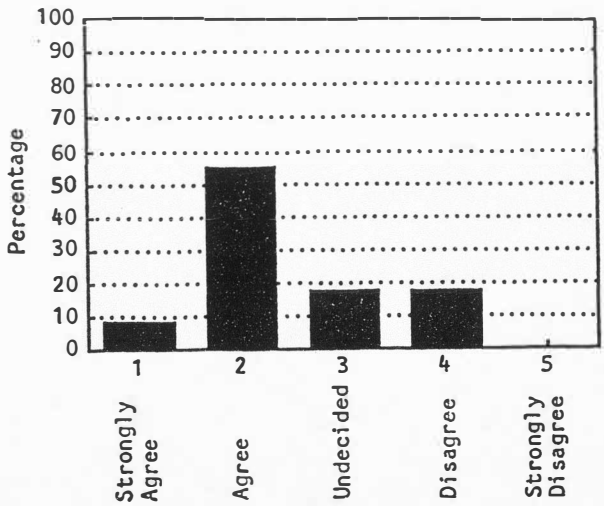
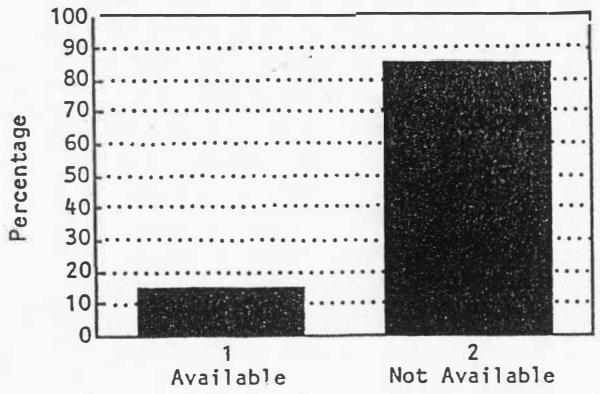
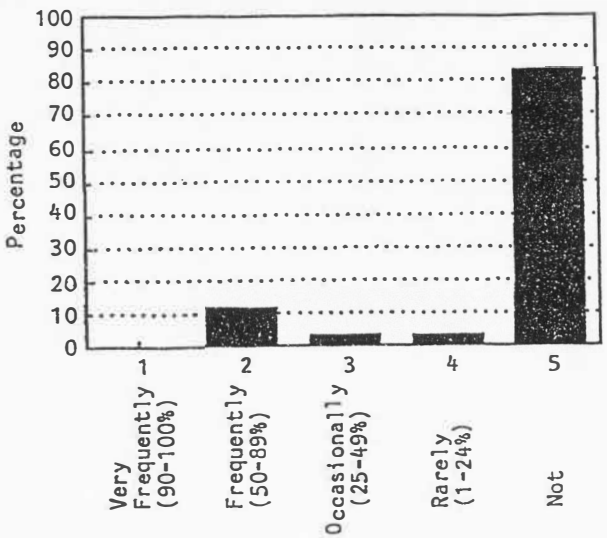


Figure 5. Frequency of responses for other prereferral procedures.

Availability of Mainstream Assistance Team



Extent Mainstream Assistance Team is Used



Mainstream Assistance Team Maintains Students in Regular Classrooms

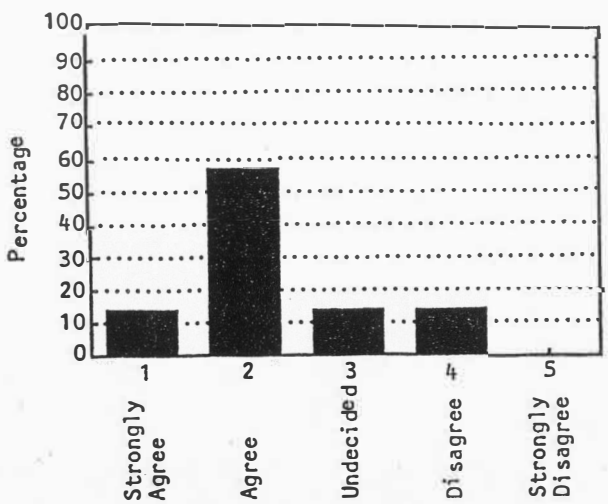
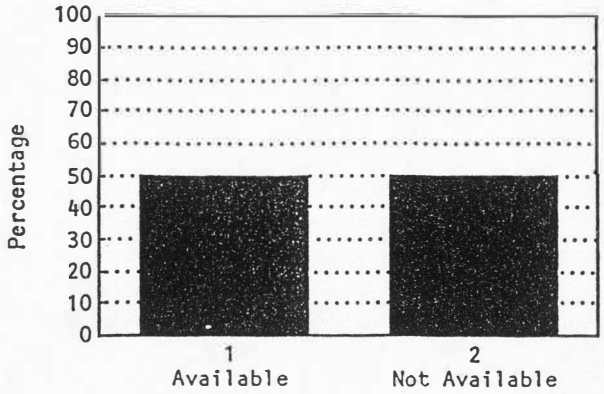
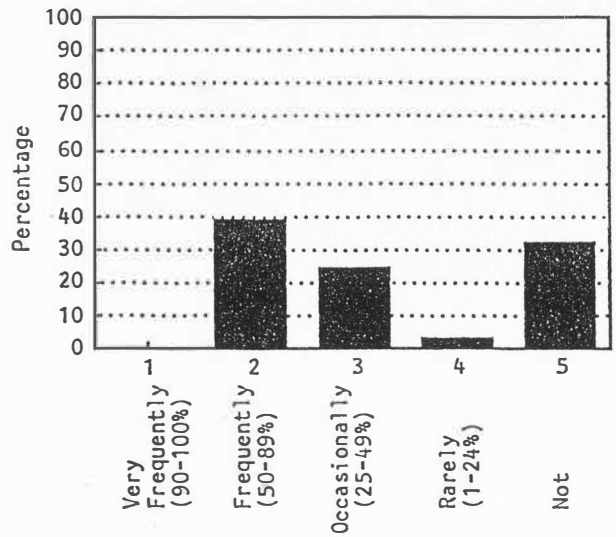


Figure 6. Frequency of responses for peer problem solving.

Availability of Mainstream Assistance Team



Extent Mainstream Assistance Team is Used



Mainstream Assistance Team Maintains Students in Regular Classrooms

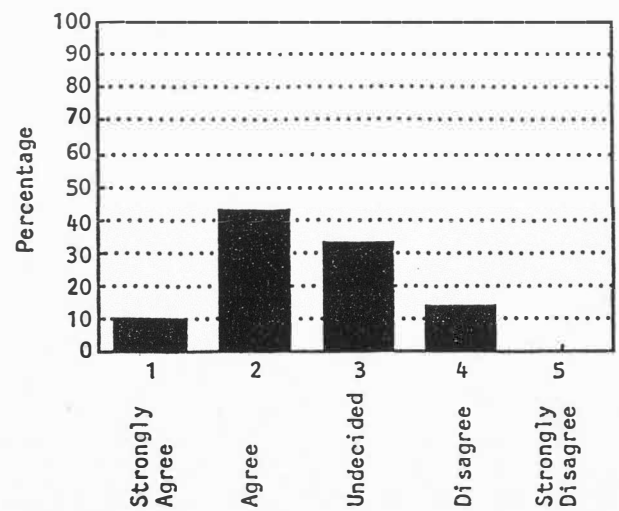
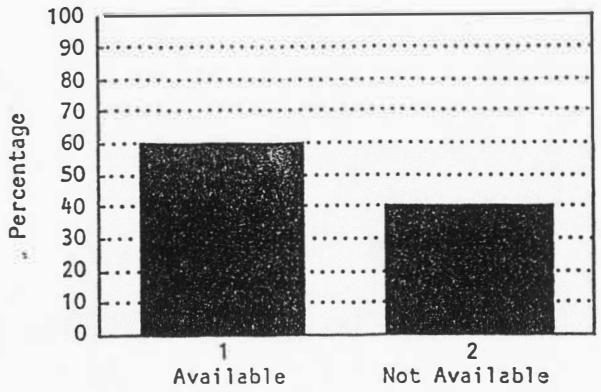
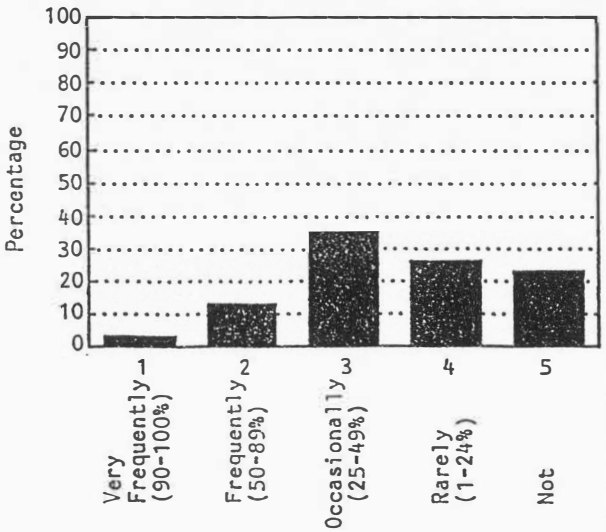


Figure 7. Frequency of responses for Consultation Model.

Availability of Mainstream Assistance Team



Extent Mainstream Assistance Team is Used



Mainstream Assistance Team Maintains Students in Regular Classrooms

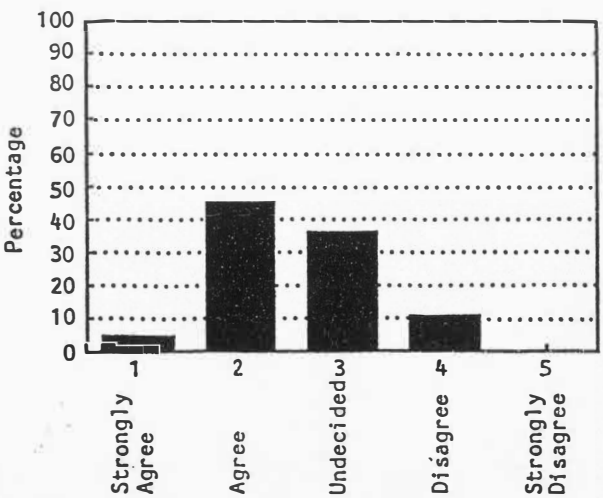
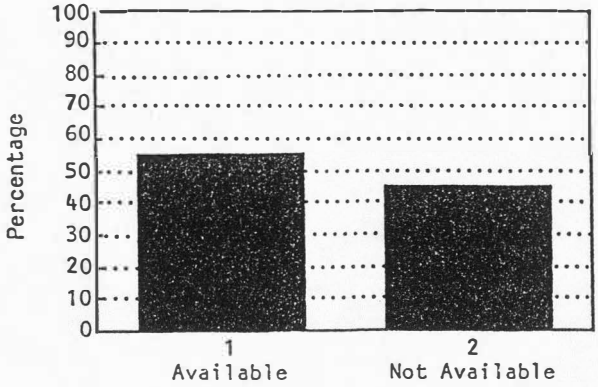
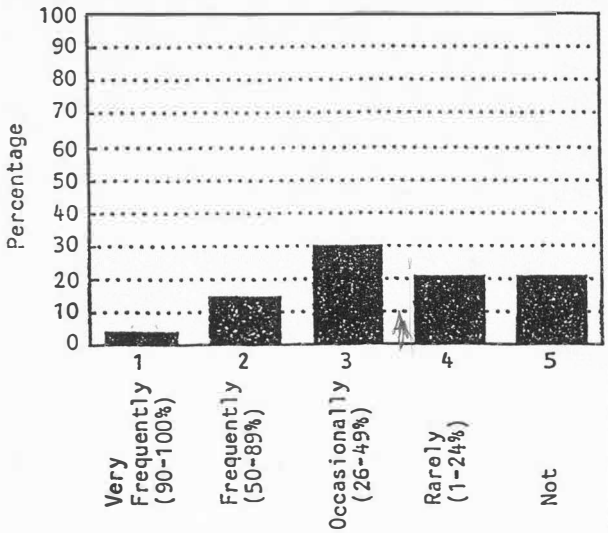


Figure 8. Frequency of responses for Project R.I.D.E. (Responding to Individual Differences in Education).

Availability of Mainstream Assistance Team



Extent Mainstream Assistance Team is Used



Mainstream Assistance Team Maintains Students in Regular Classrooms

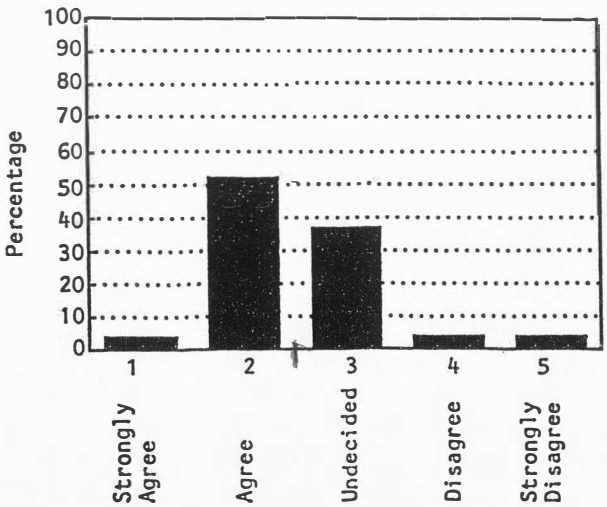


Figure 9. Frequency of responses for Teacher Assistance Teams.

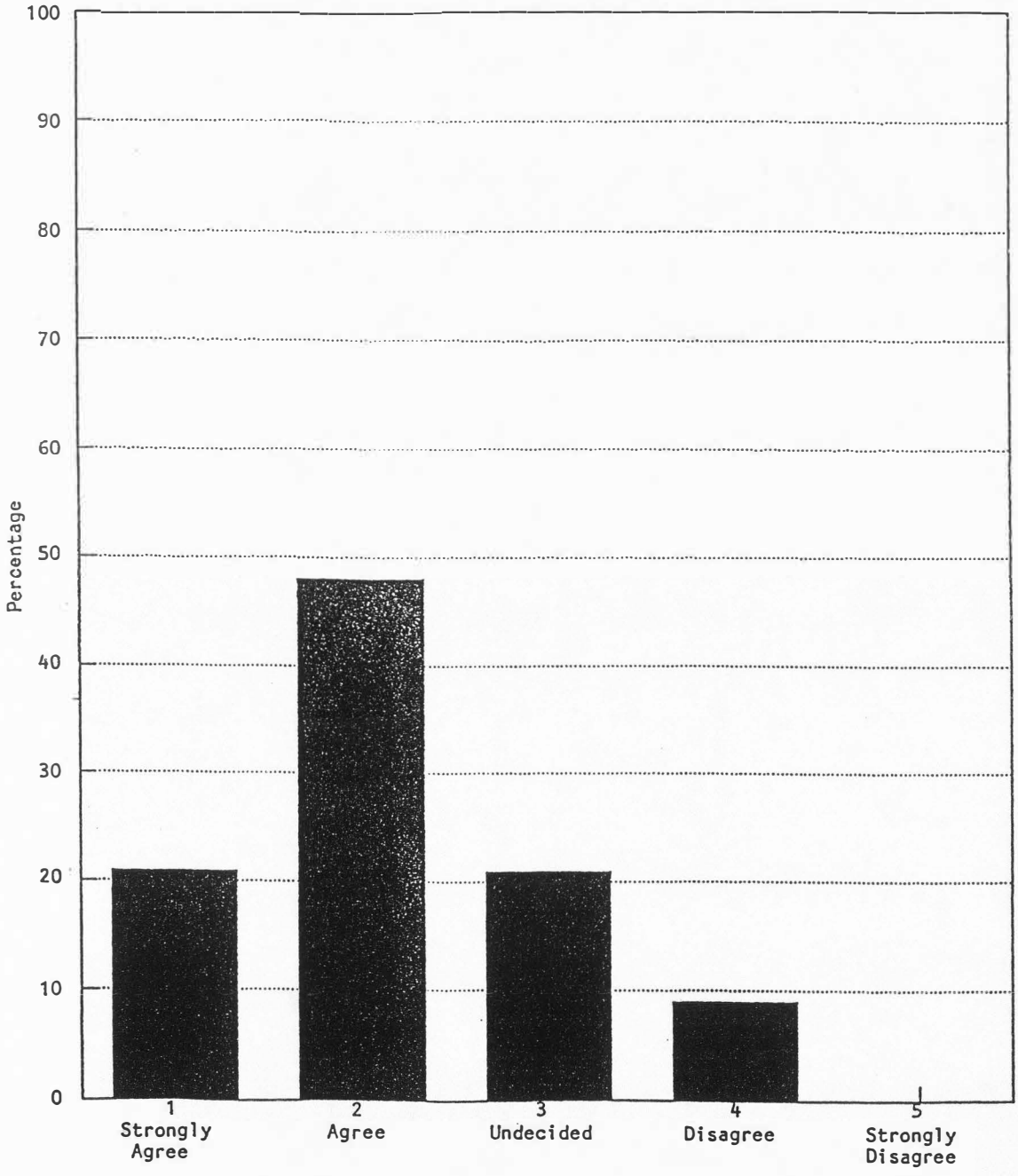


Figure 10. Regular classroom teachers benefit from the preferral process.

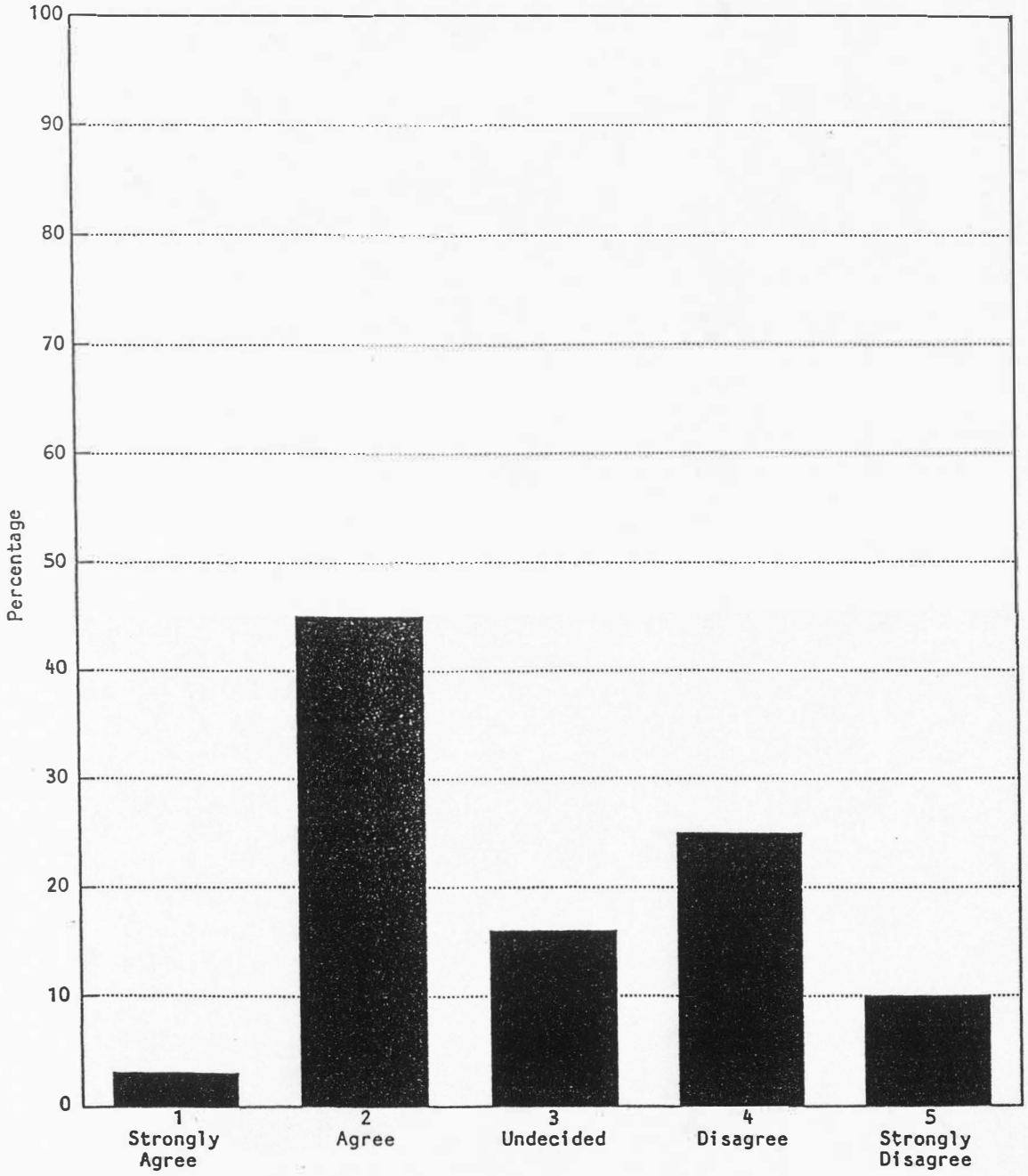


Figure 11. Regular teachers follow through with the prereferral process.

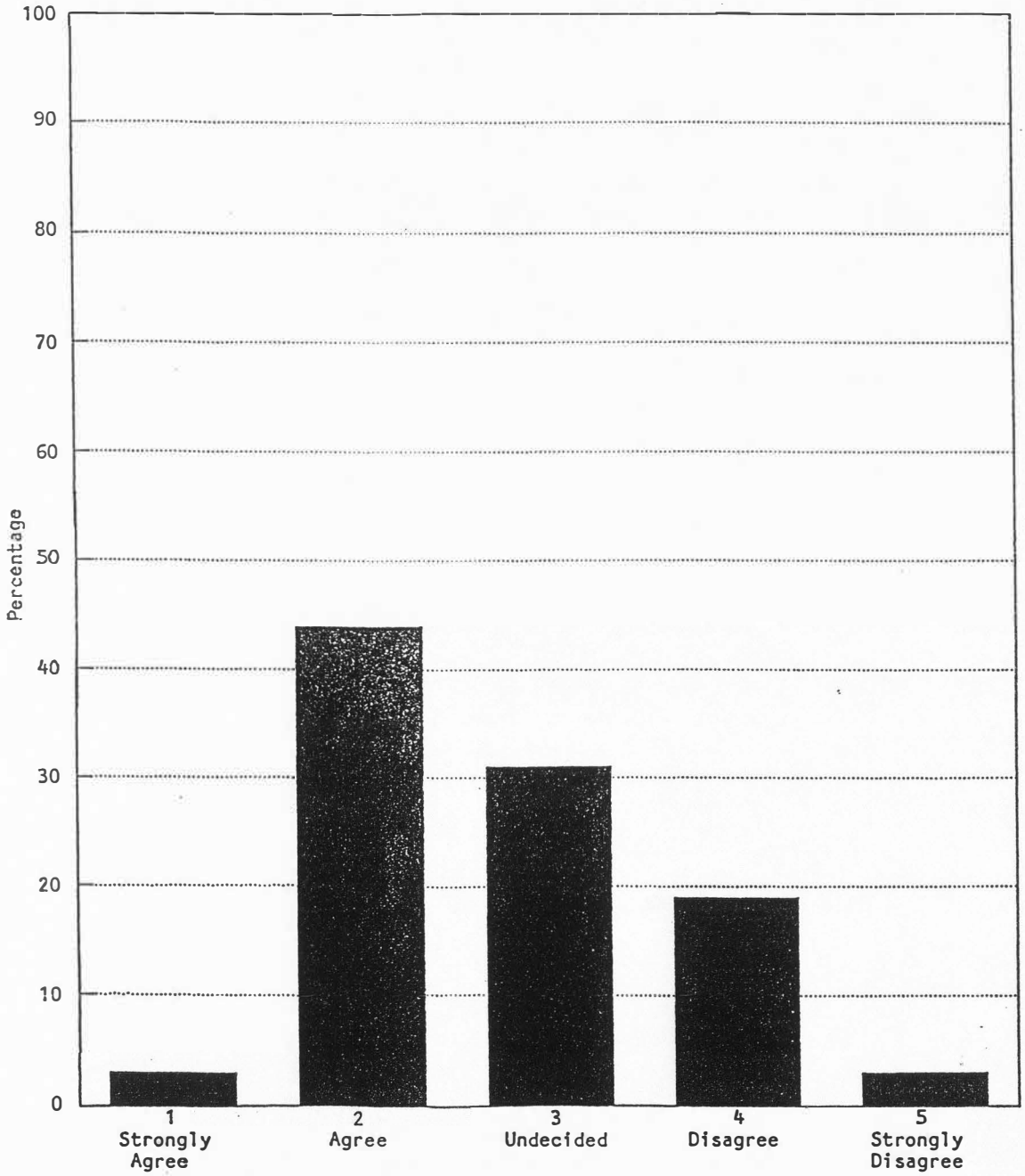


Figure 12. Regular classroom teachers refer fewer numbers of students as a result of the prereferral process.

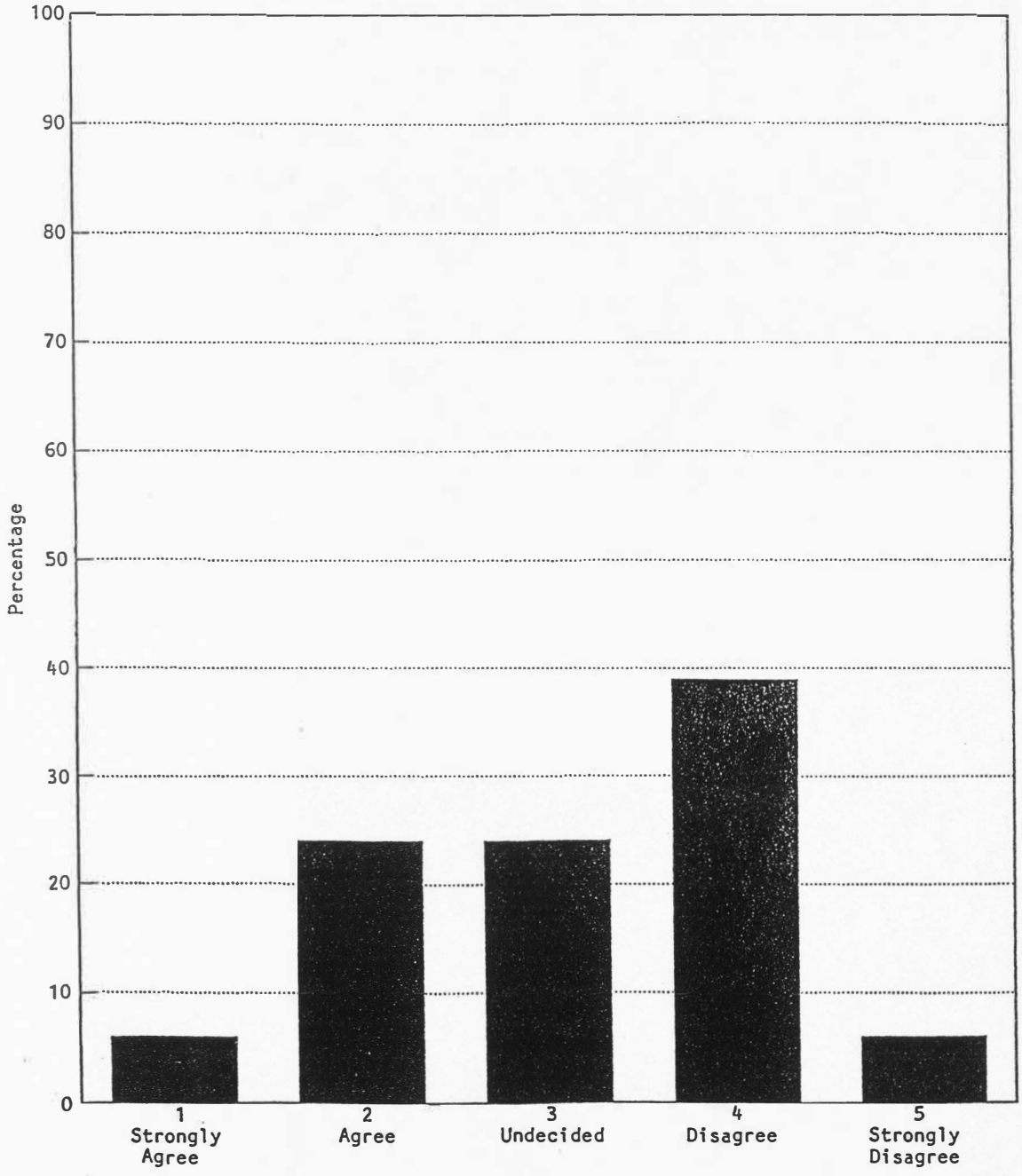


Figure 13. The prereferral process is a bureaucratic hurdle.

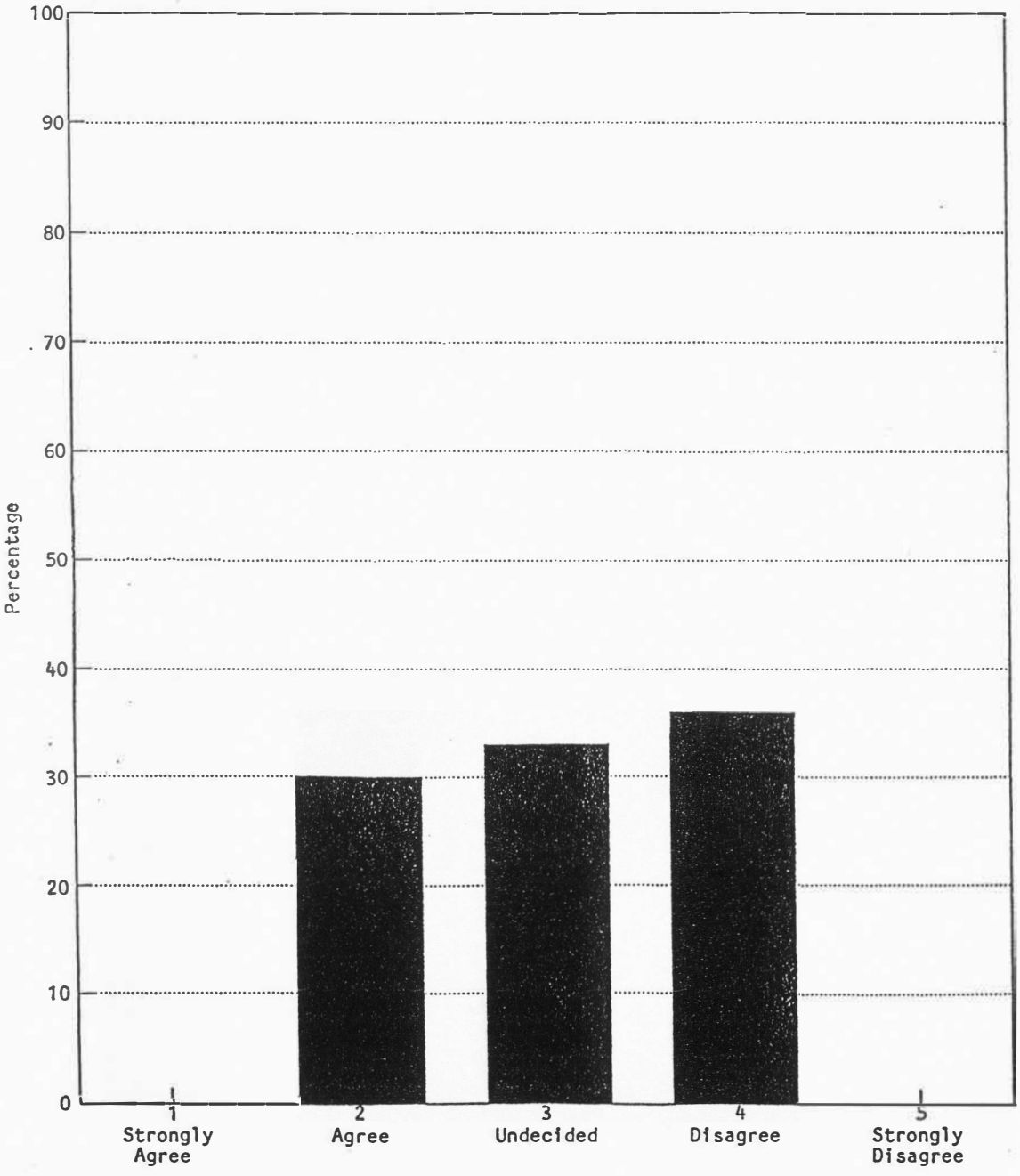


Figure 14. The prereferral process maintains difficult to teach students in the regular classroom.

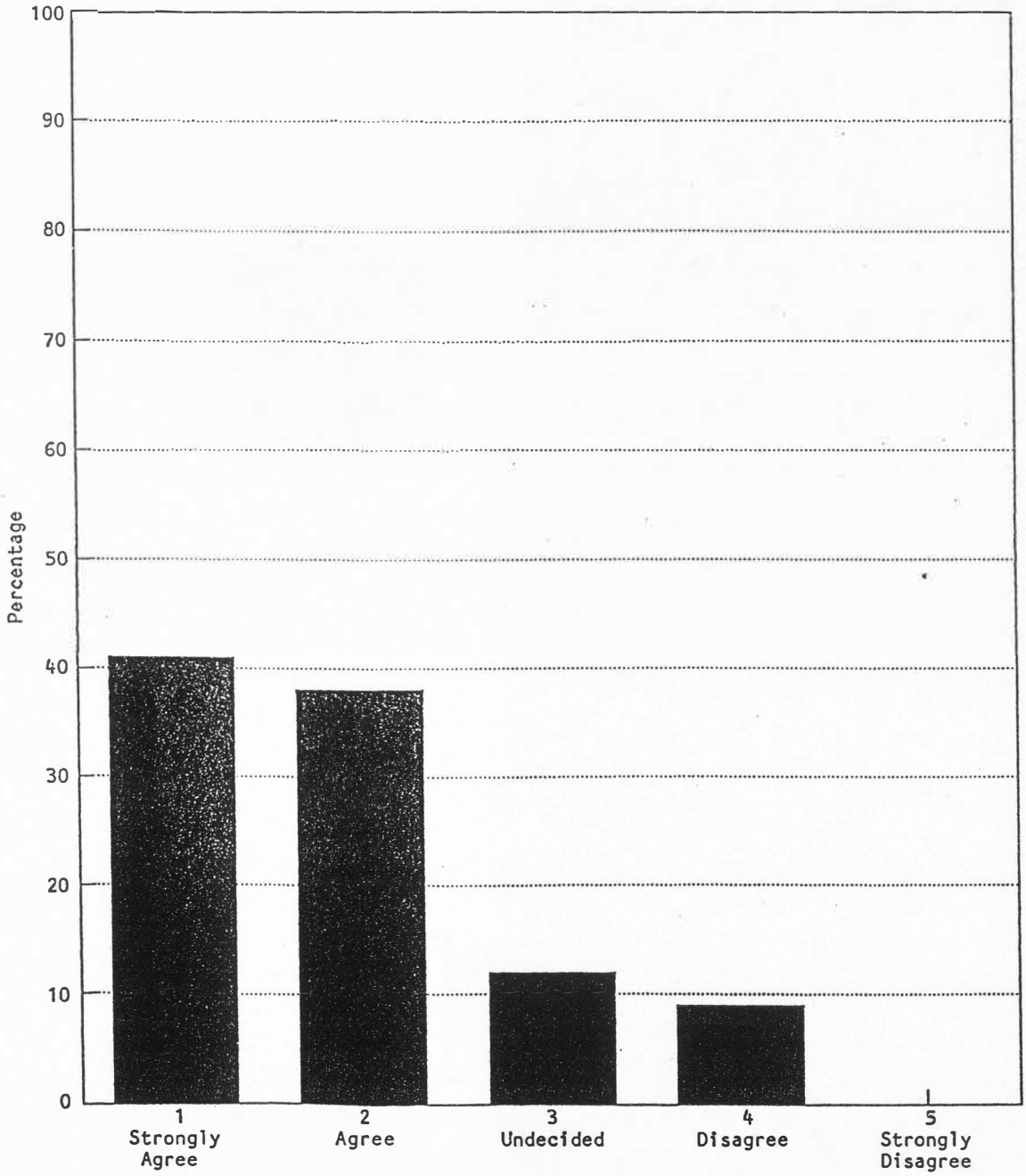


Figure 15. The prereferral process should be maintained.

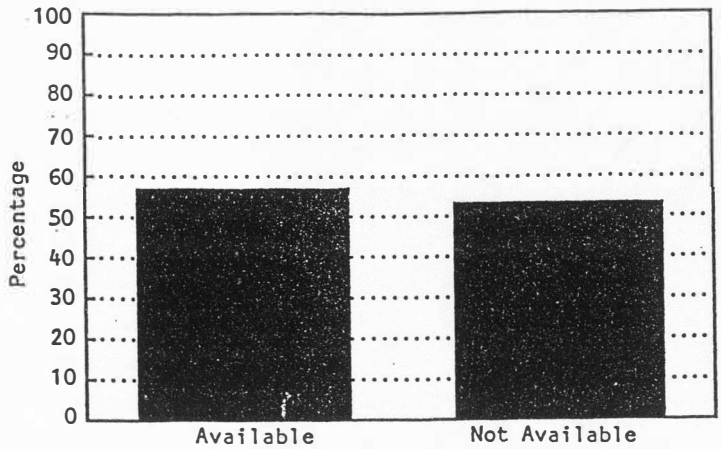


Figure 16. Availability of in-school inservice training.

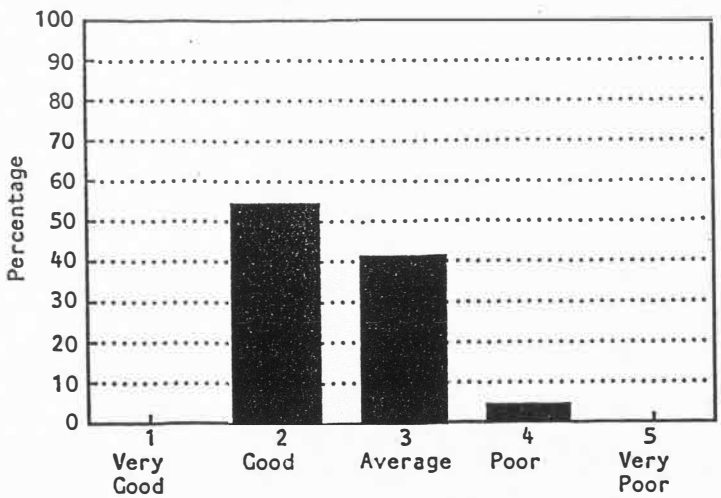


Figure 17. Adequacy of in-school inservice training.

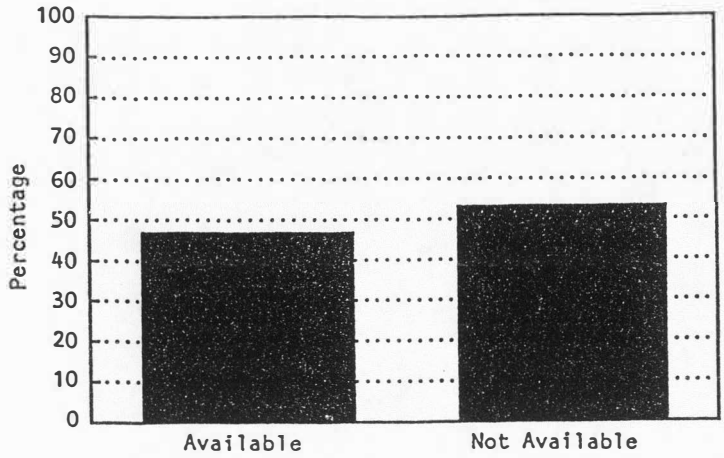


Figure 18. Availability of district inservice training.

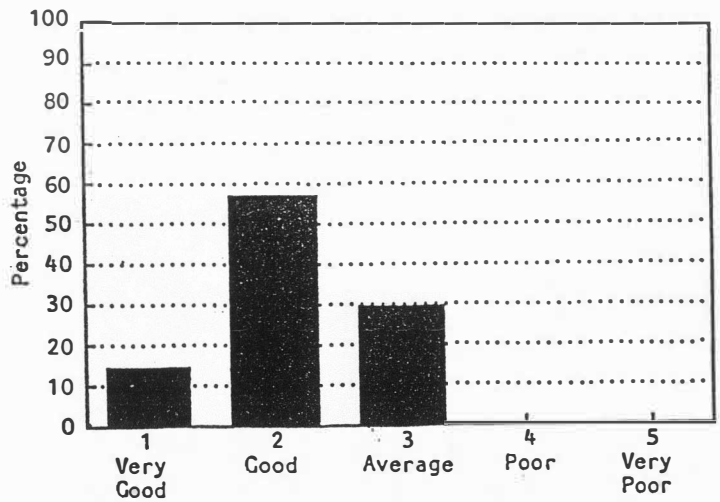


Figure 19. Adequacy of district inservice training.

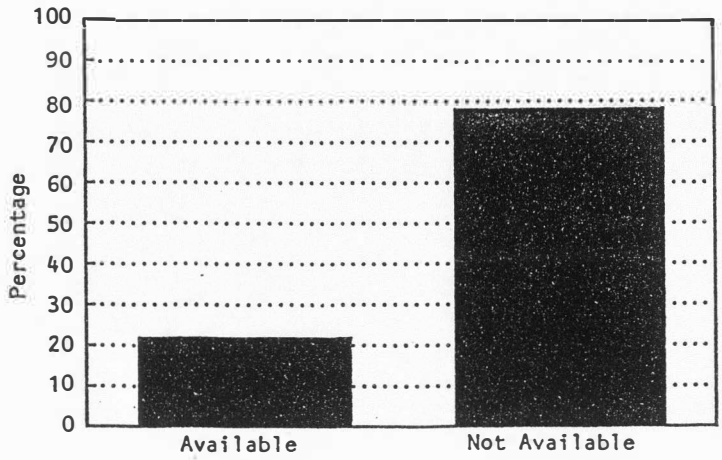


Figure 20. Availability of shared inservice training.

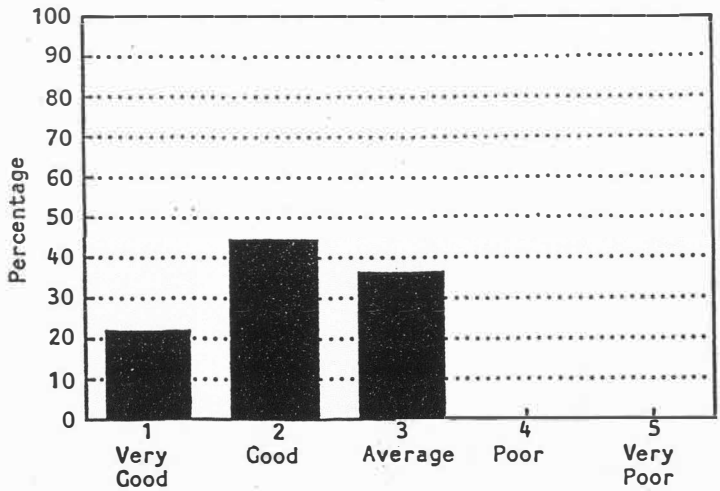


Figure 21. Adequacy of shared inservice training.

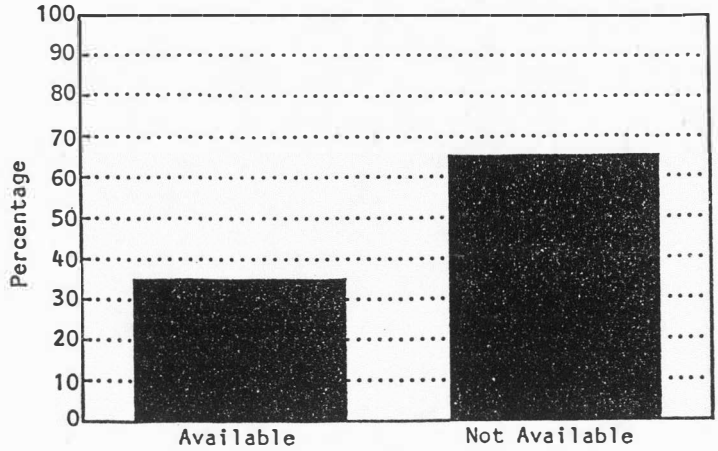


Figure 22. Availability of workshops and/or conferences.

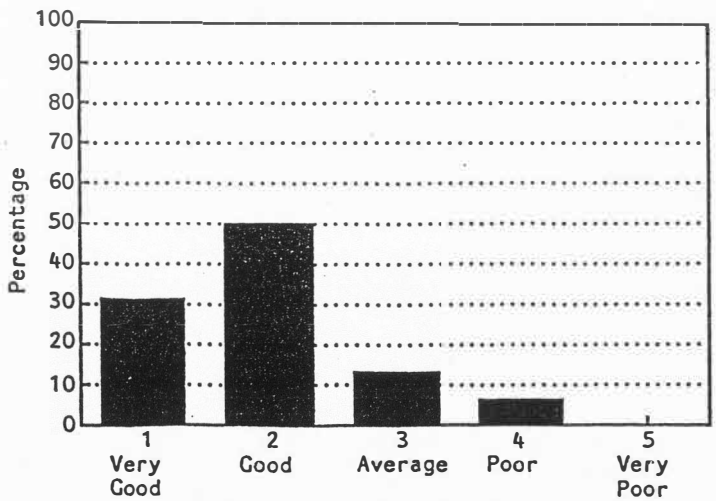


Figure 23. Adequacy of workshops and/or conferences.

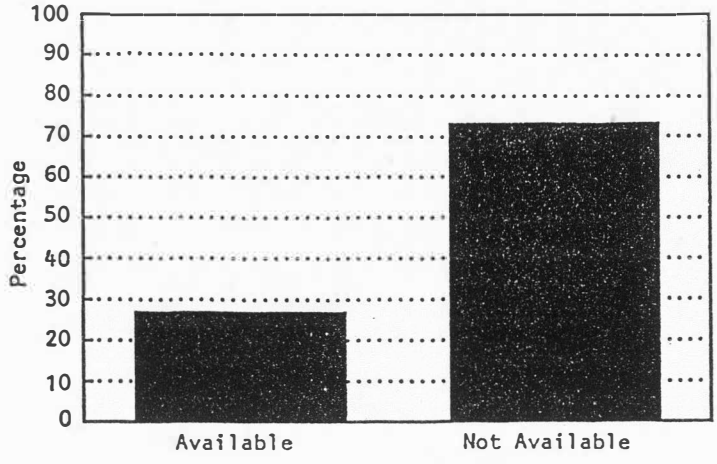


Figure 24. Availability of consultation.

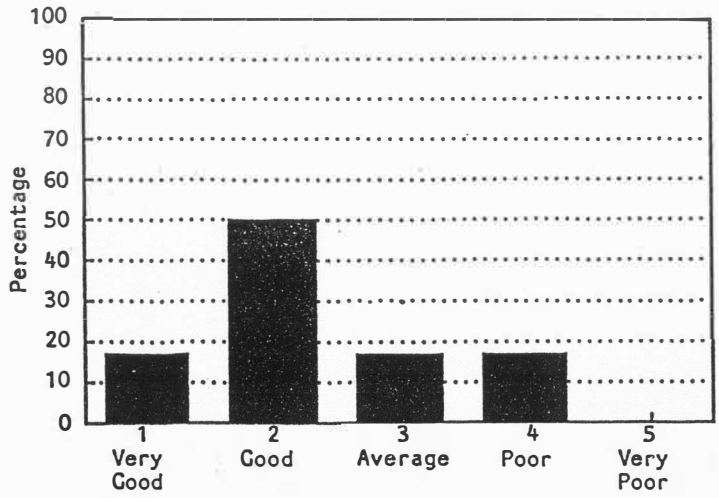


Figure 25. Adequacy of consultation.

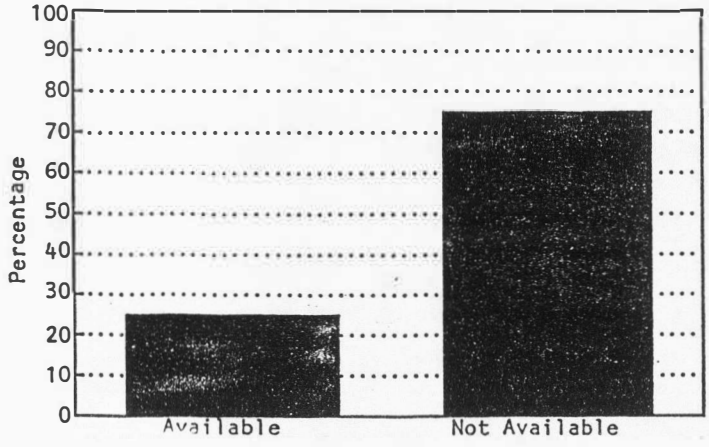


Figure 26. Availability of other sources of training.

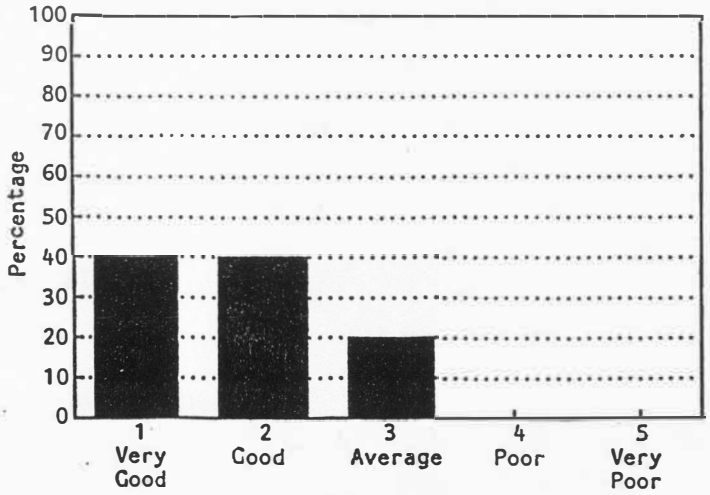


Figure 27. Adequacy of other sources of training.

VITA

J. RON NELSON

ADDRESSES

Office Address: Early Childhood Intervention Program
Allegheny-Singer Research Institute
320 East North Avenue
Pittsburgh, PA 15212-9986
(412) 359-1619

Home Address: 612 Hampton Avenue
Pittsburgh, PA 15221
(412) 243-2173

PROFESSIONAL PREPARATION

Ph.D.	Candidate	Utah State University, Logan, UT Special Education
M.S.	1987	Eastern Montana College, Billings, MT Special Education
B.S.	1983	University of Wisconsin, Madison, WI Agricultural Science
B.S.	1979	University of Wisconsin, Riverfalls, WI Plant Science

Teaching Certification

Special Education, State of Wyoming (all categories), 1984

TEACHING EXPERIENCES

University

Purdue University (1988-1989), Instructor
Courses taught: Educational Measurement
Introduction to Educational Psychology

Utah State University (1987-1988), Instructor
Course taught: Social Skills Training for Students with Handicaps

Eastern Montana College (1986-1987), Teaching Assistant
Course taught: Assessment of Exceptional Children

University of Wyoming-Casper (1985-1986), Instructor
Course taught: Teaching Students with Emotional Handicaps

Inservice Teacher Training

Utah State University (1987-1988)
Trained elementary and secondary special educators on effective teaching strategies for use with students with behavior disorders.

Eastern Montana College (1986-1987)
Trained elementary and secondary special educators to conduct assessments and develop individual education plans for students with learning disabilities.
Practicum supervisor: Supervised preservice college students seeking certification in special education.

Natrona County School District, Casper, WY (1985)
Trained regular education teachers, special education teachers, and administrators in strategies to use with children and youth with behavior disorders.

Department of Social Services, Casper, WY (1985)
Trained department personnel and foster families in aggression reduction strategies to use with children and adolescents with behavior disorders.

Secondary Teaching

Regular Education (1983)
Douglas High School, Douglas, WY: Student teacher of secondary science.

Special Education (1986-1987)
Rivendale Psychiatric Hospital, Billings, MT: A privat facility serving students with emotional handicaps.

Special Education (1984-1986)
Roosevelt Alternative High School, Casper, WY: Self-contained special education classroom for adolescents with behavior disorders.

RESEARCH AND EVALUATION ACTIVITIES

Project Director (1990-present)

"Pennsylvania State Department of Education, Division of Special Education, Early Intervention Project." State grant awarded to Allegheny-Singer Research Institute, Early Childhood Intervention Program, to develop an early intervention program monitoring system.

Responsibilities: Coordination of project activities, data analysis, and dissemination of results.
Project Co-director: Philip Strain

Project Director (1989-1990)

"Utah State Department of Education, Division of Special Education, Prereferral Project." Federal grant awarded to Utah State Department of Education and Utah State University to evaluate the mandated prereferral process across the state.
Responsibilities: Coordination of project activities, data analysis, and dissemination of results.
Project Co-director: Alan Hofmeister

Project Assistant (1989-1990)

"Utah State Department of Education, Division of Special Education, Federal and State Compliance Evaluatin Project." Contract awarded to the Special Education Department, Utah State University, to evaluate local education agencies' compliance with federal and state rules and regulations for the delivery of services to students with handicaps.
Responsibilities: Conduct inbriefing meetings, data analysis, and write summary reports.
Project Co-directors: Ben Bruce and Margaret Lubke

Project Assistant (1989)

"Utah State Department of Education Mainstreaming Project." Contract awarded to the Utah State Department of Education and Utah State University to evaluate a state-wide mainstreaming project designed to facilitate the integration of students with handicaps.
Responsibilities: Data analysis and write summary report.
Project Director: Alan Hofmeister

Project Director (1989)

"Logan Senior High School Summer Workshop Project." Private contract to evaluate a science and humanities enrichment program for gifted students.
Responsibilities: Data analysis and write summary report.

Research Assistant (1988-1989)

"Spencer Foundation Award: Developmental study of children's conception of knowledge," a 1-year grant awarded to Dr. John Nicholls, Educational Psychology, Purdue University. Research examined changes in children's conception of knowledge.
Responsibilities: Grant writing, development and administration of instruments, data analysis, and dissemination of results.
Project Director: John Nicholls

Research Assistant (1988-1989)

"Field-Initiated Reserach: Mnemonic strategies for students with learning disabilities," a 3-year grant awarded to the Special Education Section, Purdue University, by the U.S. Department of Education. Research investigated the effects of mnemonic strategies as a means to facilitate the content area learning of students with learning disabilities.

Responsibilities: The development of materials and data analysis.
Project Co-directors: Margo Mastropieri and Tom Scruggs

Research Assistant (1987-1988)

"Personnel Training Grant: Behavior disorders personnel training grant," a 3-year grant awarded to the Department of Special Education, Utah State University, by the U.S. Department of Education.

Responsibilities: The development of preservice courses and training activities for elementary and secondary teachers of students with behavior disorders.
Project Director: Daniel P. Morgan

Research Assistant (1986-1987)

"Personnel Training Grant: Rural special education training grant," a 3-year grant awarded to the Department of Habilitative Services, Eastern Montana College, by the U.S. Department of Education.

Responsibilities: The identification of teacher competencies and the development of a preservice training program for rural elementary and secondary special educators.
Project Director: Francis Weatherly

PUBLICATIONS

Journals

Nelson, J. R., Smith, D. J., & Dodd, J. (1990). The moral reasoning of juvenile delinquents: A meta-analysis. Journal of Abnormal Child Psychology, 18(3), 231-239.

Nelson, J. R., Dodd, J., & Smith, D. J. (1990). A comparison among academic division: Faculty willingness to make accommodations for students with learning disabilities in higher education. Journal of Learning Disabilities, 23(3), 185-189.

Dodd, J. M., Hermanson, M., Nelson, J. R., & Fischer, J. (in press). Tribal college faculty willingness to provide accommodations for students with learning disabilities. Journal of Indian Education.

Nelson, J. R., & Lignugaris/Kraft, B. (1989). A review of services provided students with learning disabilities in post-secondary institutions. Exceptional Children, 56(3), 246-265.

Bearcrane, J., Dodd, J. M., Nelson, J. R., & Oswald, S. W. (1989). Educational characteristics of American Indians. Rural Educator, 11(3).

Dodd, J., & Nelson, J. R. (1989). Learning disabled adults: Implications for tribal colleges. Journal of American Indian, 28, 31-38.

Dodd, J., Nelson, J. R., & Peralez, E. (1989). Understanding the Hispanic student. Rural Educator, 10, 8-13.

Smith, D. J., Nelson, J. R., & Young, K. R. (1988). Self-management for students with behavioral disorders in rural settings. Rural Special Education Quarterly, 9, 24-32.

Dodd, J. M., & Nelson, J. R. (1988). ACLD services and programs for learning disabilities: Full speed ahead to the second century. MACLD Newsletter.

Nelson, J. R. (1987). University bound students with learning disabilities. ACLD Newsletter, 64, 7-10.

Bell, K., Young, K. R., Blair, M., & Nelson, J. R. (in press). Facilitating mainstreaming of students with behavioral disorders using classwide peer tutoring. School Psychology Review.

Nelson, J. R., Smith, D. J., & Dodd, J. M. (in press). Instructional adaptations available for students with learning disabilities at vocational community colleges. Learning Disabilities: A Multidisciplinary Journal.

Nelson, J. R., Smith, D. J., & Dodd, J. (in press). Functional time estimation of adolescents with behavior disorders: A comparison. Behavioral Disorders.

Nelson, J. R., & Smith, D. (in press). A review of self-management outcome studies conducted with students that exhibit behavioral disorders. Behavioral Disorders.

Smith, M., Nelson, J. R., & Smith, D. J. (in press). Research into practice: The Nottingham School Project. Educational Leadership.

Dodd, J., Nelson, J. R., & Dennigan, D. (in press). The regular education initiative: Let's share the discussion. Journal of Rural and Small Schools.

PROFESSIONAL PRESENTATIONS

Nelson, J. R., Smith, D. J., & Dodd, J. M. (1990, April). The functional time estimation skills of students with mild handicaps: Implications for teachers. Paper presented at the International Conference of the Council for Exceptional Children, Toronto, Canada.

Nelson, J. R. (1990, April). Evaluation report of a national mainstreaming project. Paper presented at the Montana Conference on Special Education, Billings, MT.

Taylor, L., & Nelson, J. R. (1990, April). Computerized observation systems for collecting academic and behavioral performance. Paper presented at the University of Wyoming Conference on Disabilities, Cheyenne, WY.

Nelson, J. R., & Lubke, M. (1989, December). State of Utah Mainstreaming Project evaluation report. Paper presented at the Invitational Forum of the Institute for Special Education Studies, Washington, DC.

Nelson, J. R., & Smith, D. J. (1989, April). Procedural issues related to the behaviors of students with handicaps: A review of the law. Paper preesnted at the International Conference of the Council for Exceptional Children, San Francisco, CA.

Smith, D. J., & Nelson, J. R. (1989, March). Self-management: A procedure for serving learning disabled and behaviorally disordered children and youth in rural settings. Paper presented at the American Council on Rural Special Education Conference, Fort Lauderdale, FL.

Nelson, J. R., & Faulk, B. (1989, February). The effective teaching literature: Implications for special educators. Paper presented at the 36th Annual Indiana Federation Council for Exceptional Children Convention, Indianapolis, IN.

Smith, D. J., & Nelson, J. R. (1989, February). Improving the academic performance and classroom behavior of mildly handicapped students using self-management strategies. Paper presented at the 36th Annual Indiana Federation Council for Exceptional Children Convention, Indianapolis, IN.

Nelson, J. R., Dodd, J., & Smith, D. J. (1989, February). Faculty willingness to accommodate students with learning disabilities in higher education. Paper presented at the ACLD International Conference, Miami, FL.

Nelson, J. R., & Dodd, J. (1988, October). Students with learning disabilities in post-secondary education: What counselors need to know and what learning disabled students can expect. Paper

presented at the Montana Association for School Counselors, Bozeman, MT.

Dodd, J., & Nelson, J. R. (1988, September). Regular initiative and special education uproar: What regular educators need to know. Paper presented at the Montana Education Association and State Council for Exceptional Children, Helena, MT.

Nelson, J. R., & Smith, D. (1988, April). Behavior disorders: Do we know enough to proceed? Paper presented at the 1988 Montana State Conference on Establishing Optimal Services for Children with Handicaps, Billings, MT.

Moore, S., McCuller, G. L., Salzberg, C. L., & Nelson, J. R. (1988, April). Professional skill levels of sheltered workshop staff. Paper presented at the Council for Exceptional Children on Establishing Optimal Services for Children with Handicaps, Billings, MT.

McCuller, G. L., Moore, S., Salzberg, C. L., & Nelson, J. R. (1988, April). Training programs for sheltered workshop staff. Paper presented at the Council for Exceptional Children Conference, Billings, MT.

PROFESSIONAL MEMBERSHIPS

American Educational Research Association
Association for Behavior Analysis
Council for Exceptional Children
Division of Learning Disabilities
Division of Behavior Disorders
Division of Research