

READING ACHIEVEMENT COMPARISON OF SPECIAL EDUCATION
STUDENTS INSTRUCTED THROUGH
PULL-OUT PROGRAMS AND IN-CLASS PROGRAMS

THESIS

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Chapter I

Statement of the Problem

Purpose

The purpose of this study is to determine if there is a significant difference in the reading achievement between students with handicapping conditions who receive instruction in pull-out programs and students with handicapping conditions who receive instruction in in-class programs.

Need for the Study

Substantial research has been done on the positive effect that in-class programs had on the social development and acceptance of students with handicapping conditions. Researchers generally agreed that "mildly handicapped" students benefited from interaction with nonhandicapped students and regular classroom teachers, while pull-out programs segregated and stigmatized students instead of promoting the acceptance of individual differences (Cartledge, Frew, and Zaharias, 1885; Deno, Maruyama, Espin, and Cohen, 1990; Guralnick and Groom, 1988; Will, 1986).

Glass and Smitt (1977) suggested that instructional strategies should be devised that would eliminate the labeling of compensatory education students and their segregation from classes of "regular" students. Students are aware of and affected by the separate treatment of certain students. Hobbs was cited in Stainback and Stainback (1984) as stating that:

... by placing a person in a separate category or system of education, it becomes possible to treat the person in ways that would not be tolerated were he or she a fully accepted member of the "normal" or "regular" group (p. 110).

There are benefits in having all students educated in the same setting. Slavin (1979) reported that when students of different abilities worked in small groups in the classroom, each member became important to the rest of the group. Positive feelings and respect were felt among students. Haynes and Jenkins (1986) commented in their study that the contribution of regular classrooms to the achievement of handicapped students is often overlooked. Likewise, Leinhardt (1980) speculated that an intergrated approach would provide poor-prognosis students with readily available models of school behavior and successful learning

postures. Such classrooms would contain a heterogeneous grouping of students of various abilities.

Stainback and Stainback (1984) concede that there are differences among students. Some of these academic differences are such that students may need adaptations or modifications in their educational experiences. The researchers pointed out in their article that these adjustments should not be used as a justification to label, segregate, or maintain a dual system of education. The in-class model would allow for all students to receive instruction with their peers without the stigma that is associated with pull-out programs. Researchers have stated that since the number of students identified as needing special services is increasing, the current process of providing services outside of the regular classroom may prove to be unreliable and inappropriate. Reynolds, Wang, and Walberg (1987) stated that special class placements often fail to provide instructional services that are not available in regular classrooms, and that segregated placements may be detrimental to the self-esteem and social acceptance of individuals with

disabilities.

Researchers also indicated that in-class programs benefited students academically. Leinhardt (1980) found that mildly handicapped students who received instruction in an in-class program were taught the basics of reading more often, for longer periods of time, and had higher reading performance than students in a pull-out program.

Schulte, Osborne, and McKinney (1990) noted that the current political and social climate has produced a movement toward fuller integration of general and special education. However, there has been limited research regarding the effectiveness of in-class programs for handicapped students when compared with the traditional pull-out programs. Deno et al. (1990) compared the instruction of students who were instructed in in-class programs with that in pull-out programs and concluded that the evidence was insufficient to confidently conclude that either approach was more appropriate.

Hence, there is the need for more study to determine if the academic achievement of handicapped students participating in in-class programs is

equivalent to or greater than achievement made by handicapped students in pull-out programs.

Questions

1. Is there a significant difference in the reading achievement of students identified as having handicapping conditions who receive instruction through pull-out programs and students identified as having handicapping conditions who receive instruction through in-class programs?
2. Do students with handicapping conditions who receive instruction in in-class programs display reading growth equal to or greater than students who receive instruction in pull-out programs as measured by the California Achievement Tests?

Definitions

P.L. 94-142: The public law created in 1975 which provides for the design and operation of educational programs for all individuals ages 3-21 regardless of the severity of disabilities. It is the mandate for a free and appropriate public education in the least restrictive environment (Schloss, 1992).

Least Restrictive Environment (LRE): The educational placement most appropriate to the learning and behavioral features of a student yet closest in proximity and nature to educational settings for same-aged students who are not disabled (Schloss, 1992).

Handicapping condition: Any of the eleven classifications of educational disabilities that adversely affects the educational performance of a student.

Pull-out program: In this study, a pull-out program is defined as primary instruction in a designated academic area delivered outside of the regular classroom setting by a special education teacher.

In-class program: In this study, an in-class program is defined as instruction delivered in the regular classroom by a classroom teacher and a special education teacher. In this study, the special education teacher is present for direct instruction the amount of time specified on the student's Individualized Educational Program.

Normal Curve Equivalent (NCE): The normal curve is represented on a scale of 1 through 99 with a mean of 50 and a standard deviation of approximately 21. It is an equal-interval scale (California Achievement Tests, 1978).

Limitations of the Study

The size of the sample for this study is relatively small (N=19) due to the fact that only students who were identified as having a handicapping condition and who participated in the previous year's California Achievement Tests were selected for the study. All primary and intermediate students from this rural Western New York school district who met the criteria participated in the study.

Summary

The study determined if there was a difference in the reading achievement of students with handicapping conditions who were instructed in pull-out programs and students with handicapping conditions who were instructed in in-class programs. Also, the study examined if students with handicapping conditions who were instructed in in-class programs displayed reading

growth equal to or greater than students with
handicapping conditions who were instructed in pull-out
programs.

Chapter II

Review of the Literature

Introduction

In recent years, many researchers and policy-makers have called for an increase in the extent to which children with mild disabilities are served in regular education settings (Schulte, Osborne, and McKinney, 1990). There has been a focus on the merger of elementary and special education services through the Regular Education Initiative (REI) (Schloss, 1992). As stated by Miller (1990), the Regular Education Initiative asks special educators to reconsider common practices and widely held assumptions about the best way in which to educate mildly handicapped students. Through the implementation of this initiative more students with handicapping conditions would be served in the least restrictive environment.

The instructional setting in which handicapped students are educated has been a prime focus since the early 1970's. In 1975, a unique law was signed which greatly affected the provision of education for children with disabilities in the United States. It

addressed the educational program and placement of students with handicapping conditions. The purpose of this law, Public Law 94-142, was to ensure that each child with a disability had an equal opportunity to benefit from free public instruction. According to the law, each child has a right to a free appropriate public education in the least restrictive environment in addition to the right to equal access and due process (State Education Department, 1992). In his review of mainstreaming practices, Schloss (1992) referred to the "least restrictive environment" as the "educational placement most appropriate to the learning and behavioral features of a student yet closest in proximity and nature to educational settings for same-aged students who are not disabled" (p. 235).

Unlike the Regular Education Initiative which attempts to merge elementary and special education services, the practices associated with P.L. 94-142 tend to separate students from the regular education program. Typically, a student who was identified as having a handicapping condition would receive services from a special education teacher outside of the regular classroom setting. The intent of instruction in a

separate setting was to have the student develop enough skills to re-enter the regular education setting. Slavin, Karweit, and Madden (1989) stated that the objective of a separate placement was to set up a situation in which students find that the support instruction made it easier to make sense of the regular instruction.

When a separate placement is selected for a student's instruction, the student is required to demonstrate proficiency in a number of areas determined by the Committee on Special Education before he or she is returned to the regular education setting. Sindelar (1981) indicated in his review that a student should be reintegrated into the regular education setting when the student's academic, social, management goals were adequately met. These guidelines and practices make it increasingly difficult for students with handicapping conditions to be part of the regular education program.

In a discussion of federal policy, Allington and Johnston (1989) argued that P.L. 94-142 required placement of handicapped students in the least restrictive environment, but the design of support services for students such as the learning disabled

lean predominantly toward pullout from the least restrictive environment for services. Junkala and Mooney (1986) conducted a study which investigated school districts which made high use of placing special education students in regular classrooms and school districts which made low use of the same placement option. The researchers observed that the largest single segment of special education students in the study received instruction in pull-out programs. A smaller proportion were served within the regular classroom. In their survey of 100 special education administrators, Junkala and Mooney (1986) reported that administrators in high use districts responded more positively than administrators in low use districts about the cost effectiveness of the regular class placement option, the ability of regular teachers to work with special education students, and the likelihood of special education students to move away from the special education status to regular classes.

A report released by the U. S. Department of Education in 1988 estimated that about 41% of special education students received services in resource rooms while 26% were served in regular classes. According to

the 1988-89 Disabled Students' Education Placement data reported by the Education Department in 1991, 1,621,483 (39%) special education students in the United States were served in resource room programs while 1,265,882 (30%) special education students were served in regular classrooms. Although recent research indicated that the in-class approach was being implemented more frequently than before, the literature reviewed by Slavin et al. (1989) showed that most compensatory instruction was still being delivered in a pull-out setting.

In their extensive review of literature concerning current special education practices, Gartner and Lipsky (1987) professed that while P.L. 94-142 requires educational services for students with handicapping conditions, it does not require a special education system. A merged or unitary system may be a viable alternative. This alternative system could serve students with mild and moderate handicaps.

Students with learning disabilities represent a large proportion of the mildly handicapped population. Algozzine and Korinek (1985) observed that there has been an alarming increase in the number of students

being identified as learning disabled. In 1987, the Interagency Committee on Learning Disabilities concluded that 5% to 10% is a reasonable estimate of the percentage of persons affected by learning disabilities. In the 1988-89 school year, 47.7% of special education students were identified as being learning disabled. Rachlin and Burke (1989) investigated the practice of labeling students with learning problems and reported: "In the past 10 years alone, the number of children diagnosed as LD has risen 140 percent, to about 1.9 million" (p. 59).

The regulations (State Education Department, 1992) define a learning disability as follows:

... a disorder in one or more of the basic psychological processes involved in understanding or in using spoken or written language, which may manifest itself in an imperfect ability to listen, think, speak, read, write, spell or to do mathematical calculations (p. 4).

Ysseldyke et al. (1982) questioned the criteria for identification of learning disabled students and the label itself. The research they reported compared the performance of fourth-grade students identified as learning disabled with a group of low-achieving fourth-grade students who were not identified as having

learning disabilities. A variety of cognitive, achievement, and perceptual tests were administered to the students. An analysis of the results indicated considerable similarities between the performances of learning disabled students and low-achieving students. The researchers in this investigation further concluded that they could not precisely identify the basis for differentiation in labeling students as learning disabled. Because of all the negatives associated with the labeling of students, especially the stigma of being singled out from the classroom, the setting in which learning disabled students receive instruction should be carefully considered.

Pull-out and in-class programs

The two primary settings in which students with handicapping conditions may receive instruction are the pull-out and in-class models. Both models present unique advantages as well as areas of concern.

Leinhardt and Pally (1982) described a pull-out setting as one in which special education students are pulled out of a heterogeneous classroom and sent to a resource room for targeted remediation. Historically, arguments for separating students and placing them in

homogeneous groups have included four basic points. First, there is the need to protect students from the painful and harmful experience of repeated failure. Second, there is the belief that such failure results in permanent damage. Third, there is the need to target more direct instructional methods in both academic and behavioral skills to children needing special assistance. Finally, there is the concern that children left in the regular classroom would fall further behind and become stigmatized by their peers (Leinhardt and Pallas, 1982).

Some researchers indicated that students made more academic gains in a pull-out setting than in other instructional settings. Yap (1983) examined the effects of different instructional settings and approaches on the achievement of compensatory education students under the Hawaii Department of Education. The researcher concluded that the pull-out program was shown to be superior to other settings examined in the three year study. Madhere (1981) conducted a study of twelve classes from grades two to seven in order to determine which instructional setting (in-class, pull-out, or lab) was most effective. He concluded that the

pull-out approach consistently yielded positive academic outcomes possibly due to the more systematic effort in designing and following the remedial instruction sequence.

In addition to these studies, Carlberg and Kavale (1980) reviewed the findings of fifty primary research studies which examined the efficacy of special versus regular class placement for students with handicapping conditions. The researchers reported that the special class placement was found to be most disadvantageous for children whose primary problem was lowered IQ levels. However, they did indicate that there was some justification in the form of positive gain in academic and social variables for the special class placement of learning disabled and emotionally disturbed children.

Even though some students met with success in a pull-out program, there are many concerns about having a student receive instruction in a setting separate from the regular class environment. Will (1986) expressed the opinion that special services often segregate and stigmatize students who could be effectively served in traditional educational settings. Many researchers are of the opinion that separating

children overtly stigmatizes them, condemns them permanently to the bottom track, lowers everyone's expectations for them, and deprives these students of the contact with brighter students (Glass and Smitt, 1977; Harnischfeger, 1979; Johnston, Allington, and Afferbach, 1985; Leinhardt and Pally, 1982; Schulte, Osborne, and McKinney, 1990).

In addition, a pull-out program can be disruptive to the student's school day. Glass and Smith (1977) reported that the teachers in the study worried that having students pulled out of class created discontinuities in their schooling and made coordination of teaching difficult. Johnston, Allington, and Afferbach (1985) interviewed classroom teachers and reading teachers in order to study how congruent the pull-out program was with the student's classroom instruction. The researchers reported frequent lack of congruence between the regular class and the remedial class settings. Their findings suggested that most remedial teachers did not know what the classroom teachers were doing and that there was a wide range in regard to frequency of communication. Teachers in the study lacked the awareness as to the

materials that the child was working with in the other instructional setting.

The second of the two instructional settings does not have the same negative attributes as the pull-out program. The second setting, in which students with handicapping conditions may receive instruction, is the in-class model. Schulte, Osborne, and McKinney (1990) described the in-class model as a partnership between the special education teacher and the general education teacher. The special education teacher provides technical assistance to the general education teacher and provides some instruction to the child. The instruction takes place in the general education classroom and is based on the child's needs within that setting and curriculum.

A variety of researchers are in favor of educating students with handicapping conditions in the regular classroom. Strain (1981, p. 104) observed: "Literature on early peer relations indicated that successful interactions with one's age-mates was a necessity for normal growth and development." In 1988, Huefner identified seven potential benefits of the in-class model.

1. There could be a reduction of stigma for the children with handicaps.
2. An improved understanding and communication across disciplines could be attained.
3. There could be an expanding of skills among educators through information obtained in the consultation process between regular and special education teachers.
4. A reduction in the mislabeling of non-handicapped students may be possible.
5. There could be additional benefits to regular students due to the enhanced teacher effectiveness.
6. It is possible that the in-class model could be adaptable to the secondary education curriculum and structure.
7. Consulting teachers may see an elevation to "master teacher" status.

Many of these potential benefits lend convincing support to the necessity of an in-class model.

Wang and Birch (1984, p.393) expressed the opinion: "The spotlight must be turned to increasing the capabilities of the regular school environment to meet the needs of individual students, rather than instituting mere cosmetic changes in the placement of students with special learning needs." Researchers investigated this alternative instructional setting. Wang and Birch (1984) conducted a study comparing the

effects of an in-class approach with a pull-out approach for instructing handicapped students. Data were collected on 179 students. Students in the pull-out program were observed to engage more in teacher-directed activities (44.5% vs. 29%), while students in the in-class program were observed to engage more in independent work (67.3% vs. 28.8%) and on-task behavior (96.3% vs. 72.7%). More importantly, the effects of the pull-out program did not generalize to the regular program, while transfer effects were observed for students in the in-class program.

Various researchers proposed that in-class programs had a positive impact on the reading achievement of handicapped students (Affleck, Madge, Adams, and Lowenbraun, 1988; Bean and Eichelberger, 1985; Leinhardt, 1980). In a three year study conducted by Affleck, et al. (1988), the academic performance of special education students in in-class programs was compared with the academic performance of students in resource rooms. Test data was collected in the areas of reading, math, and language. Results of the analysis indicated that there was no significant difference between the academic performance of the two

groups. The researchers concluded that special education students in in-class programs made comparable gains to their peers in pull-out programs.

Schulte, Osborne, and McKinney (1990) analyzed the achievement test data collected from 67 children with learning disabilities who were assigned to different instructional settings. The researchers reported that in this study students who were assigned to the in-class model made greater overall academic gains than students assigned to a resource room program for one period per day. It was noted, however, that the gains were not evident when achievement was examined separately for reading, written language, and math. This discrepancy between achievement scores is one of the areas of concern for in-class programs. Researchers disagree about which setting promotes more academic progress.

Another area of concern for the in-class model is the changing role of the specialists involved in such programs. Remedial and special education teachers who worked in in-class programs found that their role in the education of specific students had changed. Bean and Eichelberger (1985) surveyed 74 specialists and 411

classroom teachers about the changing roles and activities of specialists in in-class programs. Their results indicated that specialists felt there was less emphasis on diagnosis, individual and group remediation, and the teaching of specific skills in the in-class programs. In the in-class programs, more emphasis seemed to be on giving feedback to the content teacher. Researchers have stated that in order for in-class programs to be effectively implemented, alterations in the training of specialists may be required. It was projected that interpersonal, communication, and administrative skills would be as important as the knowledge of the reading process and the methodology of teaching reading (Bean, 1979).

In summary, it has been theorized that in-class programs could be a promising preventative technique which may improve the achievement of lower functioning students and possibly lower the referral rate for special education (Schulte et al., 1990). Researchers proposed that if special education students are able to make academic gains as well as social gains by remaining in the classroom, programs should be implemented to allow for necessary services in the

least restrictive of classroom environments (Affleck et al., 1988; Schloss, 1992).

Chapter III
Design of the Study

Purpose

The purpose of this study is to determine if there is a significant difference in the reading achievement between students with handicapping conditions who receive instruction in pull-out programs and students with handicapping conditions who receive instruction in in-class programs.

Questions

1. Is there a significant difference in the reading achievement of students identified as having handicapping conditions who receive instruction through pull-out programs and students identified as having handicapping conditions who receive instruction through in-class programs?

2. Do students with handicapping conditions who receive instruction in in-class programs display reading growth equal to or greater than students who receive instruction in pull-out programs as measured by the California Achievement Tests?

Methodology

Subjects

The subjects for this study were 19 second, third, fourth, and fifth grade special education students from a rural Western New York school district.

All elementary students who were identified as having handicapping conditions and who received direct reading instruction from a special education teacher were used in the study. Some of the students received their reading instruction in pull-out programs (N=10), while others received their reading instruction in in-class programs (N=9). The pull-out programs' reading instruction was provided by a special education teacher in a setting that was not to exceed 15 students. The in-class programs' reading instruction was provided by a regular education teacher and a special education teacher with assistance from a part-time instructional aide in a setting that was not to exceed 28 students. Each student in this study has been identified by the Committee on Special Education as having a handicapping condition (Learning Disabled= 90%, Speech Impaired= 10%).

Materials

Total reading scores obtained from the California Achievement Tests (CAT) were used as pretest and posttest measures. The California Achievement Tests are group administered standardized tests that are given yearly to each grade level (1-5) in this rural Western New York school district. These achievement tests are designed to measure the effectiveness of curricular retention (Sheppard and Campbell, 1963). The Kuder-Richardson formula 20 (KR 20) was applied to the California Achievement Tests as a measure of internal consistency (California Achievement Tests Norms Book, 1986). The KR 20 coefficients for the various grade levels are found in Appendix A.

Procedure

The researcher collected the Total Reading Normal Curve Equivalent (NCE) scores from the 1992 California Achievement Tests obtained from students with handicapping conditions in in-class programs and pull-out programs. The scores served as pretest measures. After ten months of treatment, the Total Reading NCE scores of the 1993 California Achievement Tests were collected from the same students in the two

programs. These scores served as posttest measures. The programs were compared to determine if there was a significant difference between the mean reading growth of special education students who were instructed in pull-out programs and the mean reading growth of special education students who were instructed in in-class programs.

Analysis of Data

An independent t test was run to compare the two reading growth means derived from the group administered standardized tests. The t test was run at the 95% confidence level to determine if there was a significant difference between the two programs.

Summary

Twenty elementary students with handicapping conditions received reading instruction in either a pull-out program or an in-class program. After ten months of instruction, their reading achievement was measured and the reading growth means of both groups were compared.

Chapter IV
Analysis of Data

Purpose

The purpose of this study was to determine if there was a significant difference in the reading achievement between students with handicapping conditions who received instruction in pull-out programs and students with handicapping conditions who received instruction in in-class programs.

Findings and Interpretations

Question One. Is there a significant difference in the reading achievement of students identified as having handicapping conditions who receive instruction through pull-out programs and students identified as having handicapping conditions who receive instruction through in-class programs? The difference between the total reading pretest scores of students in pull-out programs and in-class programs was compared with a t test in order to determine if the samples were comparable. The results are shown in Table 1.

Table 1

Mean and t Test Difference Between Pretest Scores of
Pull-out and In-class Programs

	MEAN	NUMBER	STANDARD DEVIATION	CALCULATED t	DF
PULL-OUT	25.78	9	8.14	-2.77	16
IN-CLASS	44.78	9	18.92		

t crit (16), $\alpha < .05 = 2.120$

A calculated t score of -2.77 was the result of the analysis. Since the critical value of t with 16 degrees of freedom at the 95% confidence level is 2.120, the null hypothesis must be rejected, concluding that there was a statistically significant difference between the mean reading pretest scores of students in pull-out programs and in-class programs. The mean score for students in pull-out programs was 25.78 whereas the mean score for students in in-class programs was 44.78. The analysis indicated that the two samples were not comparable, therefore, it was necessary to run an analysis of covariance on the adjusted posttest means in order to compare the

significantly different samples.

The difference between the reading scores of students in pull-out programs and in-class programs was compared with an analysis of covariance. The results are shown in Table 2.

Table 2

Analysis of Covariance on Reading Score Differences of Pull-out and In-class Programs (Posttest-Pretest)

	DF	SUM OF SQUARES	MEAN SQUARE	F-RATIO	PROBABILITY
BETWEEN	1	.0035	.0035	.0000728	.9895
ERROR	15	716.8498	47.79		
COVARIATE	1	944.9246			
TOTAL	17	1661.7780			

$F_{crit}(1, 15), \alpha < .05 = 6.20$

A calculated F score of .0000728 was the result of the analysis. Since the critical value of F with 1 and 15 degrees of freedom at the 95% confidence level is 6.20, the researcher fails to reject the null hypothesis. The conclusion is that there is no

significant difference in the pull-out programs and the in-class programs.

Question Two. Do students with handicapping conditions who receive instruction in in-class programs display reading growth equal to or greater than students who receive instruction in pull-out programs as measured by the California Achievement Tests?

The difference between pull-out and in-class programs was compared with an analysis of covariance. The analysis of covariance was run on the posttest scores of each program due to the fact that the subject samples were not comparable initially. The results are shown in Table 3.

Table 3

Analysis of Covariance of Posttest Scores Between
Pull-out and In-class Programs

	DF	SUM OF SQUARES	MEAN SQUARE	F-RATIO	PROBABILITY
BETWEEN PROGRAMS	1	.004	.004	.0000843	.989
ERROR	15	716.850	47.790		
COVARIATE	1	1607.646			
TOTAL	17	2324.500			

$F_{crit}(1, 15), \alpha < .05 = 6.20$

A calculated F score of .0000843 was the result of the analysis. Since the critical value of F with 1 and 15 degrees of freedom at the 95% confidence level is 6.20, the researcher fails to reject the null hypothesis. The conclusion is that there is no significant difference in the posttest scores of students in the pull-out programs and the in-class programs. The adjusted mean posttest scores were close to zero in variability with an F score of .0000843. Since there was little difference between posttest

scores, it could not be concluded that one program yielded significantly better results than another.

Chapter V

Conclusions and Implications

Purpose

The purpose of this study was to determine if there was a significant difference in the reading achievement between students with handicapping conditions who received instruction in pull-out programs and students with handicapping conditions who received instruction in in-class programs.

Conclusions

The researcher observed that the mean pretest scores of the students in in-class programs were noticeably greater than the mean pretest scores of students in pull-out programs. The analysis of these scores led to the conclusion that the two student samples were not comparable. The students in the in-class programs were of differing academic abilities than the students in the pull-out programs. Even with the existence of these differences, further analysis determined that the students in the pull-out programs did not make significantly different reading growth than the students in the in-class programs.

These results are consistent with those reported by Deno, Maruyama, Espin, and Cohen (1990). The researchers compared the instruction of special education students who received instruction in pull-out programs with special education students who received instruction in in-class programs. Likewise, these researchers concluded that the evidence was insufficient to confidently conclude that either approach was more appropriate.

Since the reading growth of the students in either program were not significantly different even though the samples were determined to be significantly different, the placement of the students within either program may have been appropriate. Further research needs to be undertaken to confidently conclude such an observation. However, careful consideration needs to be given when deciding upon the special education program that is appropriate for each individual student with a handicapping condition to ensure that the placement is in the least restrictive environment.

Implications for Research

Further investigations into special education programs could include the following:

1. Further studies on the relationship of special education programs and reading growth.
2. Studies comparing specific reading programs and materials used by teachers in pull-out and in-class programs.
3. Further studies on comparable groups of special education students in pull-out and in-class programs in order to examine the relationship between reading growth and group differences.
4. Studies exploring the attitudes of students with handicapping conditions on their placement in particular special education programs.
5. Studies surveying special education teachers to determine how they select and recommend students for in-class programs. Do students in in-class programs possess social or academic qualities which distinguish them from students selected for pull-out programs?

Implications for Classroom Practice

There is renewed emphasis on the placement of a student with handicapping conditions in the least restrictive environment due to legislative mandates and social correctness. For some students, this may be the regular classroom environment. It will be necessary for special education teachers to identify those students who will make academic as well as social gains through in-class programs. Programs and activities will need to be designed in a manner in which a student with handicapping conditions will be able to meet with success in the regular classroom environment. Program decisions will need to be made on an individual basis in order to meet the needs of each student.

In addition to the design of the student's program, regular education and special education teachers will need to design their own collaborative working relationship. Professional training will be necessary to address communication and curricular concerns as well as to promote establishing a positive working relationship.

For students who are recommended to receive services through pull-out programs, it will be

necessary to pinpoint the exact skills and qualities in need of development. These areas should be identified early in order to be strengthened, so that return to the regular classroom environment will occur as expediently as possible.

REFERENCES

- Affleck, J.Q., Madge, S., Adams, A. & Lowenbraun, S. (1988). Integrated classroom versus resource model: Academic viability and effectiveness. Exceptional Children, 54(4), 339-348.
- Algozzine, B., & Korinek, L. (1985). Where is special education for students with high prevalence handicaps going? Exceptional Children, 51(5), 388-394.
- Allington, R. L., & Johnston, P. (1989). Coordination, collaboration, and consistency: The redesign of compensatory and special education interventions. In R.E. Slavin (Ed.), Effective Programs for Students At Risk, (p. 330). Needham Heights, Massachusetts: Allyn and Bacon.
- Bean, R.M. (1979). Role of the reading specialist: A multifaceted dilemma. The Reading Teacher, 32(4), 409-413.
- Bean, R.M., & Eichelberger, R.T. (1985). Changing the role of reading specialists: From pull-out to in-class programs. The Reading Teacher, 38, 648-653.
- California achievement tests. (1978). Monterey, CA: CTB/McGraw Hill.
- California achievement tests norms book. (1986). Monterey, CA: CTB/McGraw Hill.
- Carlberg, C., & Kavale, K. (1980). The efficacy of special versus regular class placement for exceptional children: A meta-analysis. The Journal of Special Education, 14(3), 295-309.
- Cartledge, G., Frew, T.W., & Zaharias, J. (1985). Social skill needs of the mainstreamed students: Peer and teacher perceptions. Learning Disability Quarterly, 8, 132-140.
- Deno, S., Maruyama, G., Espin, C., & Cohen, C. (1990). Educating students with mild disabilities in general education classrooms: Minnesota alternatives. Exceptional Children, 57, 150-161.
- Education Department. (1991). Disabled students' education placements. Washington, DC.

- Gartner, A., & Lipsky, D.K. (1987). Beyond special education: Toward a quality system for all students. Harvard Educational Review, 57(4), 367-395.
- Glass, G.V., & Smitt, E.L. (1977). "Pull out" in compensatory education. Department of Health, Education, and Welfare. (ERIC Document Reproduction Service No. ED 160 723)
- Guralnick, M.T., & Groom, T.M. (1988). Peer interactions in mainstreamed and specialized classrooms: A comparative analysis. Exceptional Children, 54(5), 415-425.
- Harnischfeger, A. (1979). Curricular control and learning time: District policy, teacher strategy, and pupil choice. Educational Evaluation and Policy Analysis, 2(6), 19-30.
- Haynes, M.C., & Jenkins, J.R. (1986). Reading instruction in special education resource rooms. American Educational Research Journal, 23(2), 161-190.
- Huefner, D.S. (1988). The consulting teacher model: Risks and opportunities. Exceptional Children, 54(5), 403-414.
- Interagency Committee on Learning Disabilities. (1987). Learning Disabilities: A Report to Congress. (National Institute of Child Health and Human Development, 9000 Rockville Pike, Bethesda, MD 20892).
- Johnston, P., Allington, R., & Afflerbach, R. (1985). The congruence of classroom and remedial reading instruction. The Elementary School Journal, 85(4), 465-478.
- Junkala, J., & Mooney, J.F. (1986). Special education students in regular classes: What happened to the pyramid? Journal of Learning Disabilities, 19(4), 218-241.
- Leinhardt, G. (1980). Transition rooms: Promoting maturation or reducing education? Journal of Educational Psychology, 72(1), 55-61.
- Leinhardt, G., & Pallas, A. (1982). Restrictive educational settings: Exile or haven? Review of Educational Research, 52(4), 557-578.
- Madhere, S. (1981). Issues in remedial program evaluation. Newark Board of Education, NJ Office of Research, Evaluation and Testing. (ERIC Document Reproduction Service No. ED 217 098)

- Miller, L. (1990). The regular education initiative and school reform: Lessons from the mainstream. Remedial and Special Education, 11(3), 17-24.
- Rachlin, J., & Burke, S. (1989). Labeling away problem kids. U.S. News & World Report, March 13, 1989, 59-61.
- Reynolds, M.C. Wang, M.C., & Walberg, H.J. (1987). The necessary restructuring of special and regular education. Exceptional Children, 53(5), 391-398.
- Schloss, P.L. (1992). Mainstreaming revisited. The Elementary School Journal, 92(3), 233-244.
- Schulte, A.C., Osborne, S.S., & McKinney, J.D. (1990). Academic outcomes for students with learning disabilities in consultation and resource programs. Exceptional Children, 57, 162-171.
- Sheppard, C., & Campbell, W.J. (1963). An evaluation of the california achievement test, elementary, form W, reading vocabulary. The Journal of Educational Research, 56(9), 481-484.
- Sindelar, P.T. (1981). Operationalizing the concept of the least restrictive environment. Education and Treatment of Children, 4(3), 279-290.
- Slavin, R.E. (1979). Integrating the desegregated classroom: Actions speak louder than words. Educational Leadership, 36, 322-324.
- Slavin, R.E., Karweit, N.L., & Madden, N.A. (1989). Effective programs for students at risk. Mass.: Allyn and Bacon.
- Stainback, W. & Stainback, S. (1984). A rationale for the merger of special and regular education. Exceptional Children, 51(2), 102-111.
- State Education Department. (1992). A parent's guide to special education for children ages 5-21. Albany, NY: New York State Education Department.
- Strain, P.S., & Kerr, M.M. (1981). Mainstreaming of children in schools. New York: Academic Press.
- U.S. Department of Education. (1988). To assure the free

appropriate public education of all handicapped children:
Tenth annual report to congress on the implementation of
the education of the handicapped act. (Washington, DC:
U.S. Department of Education), p. B45, Table BC1.

- Wang, M.C., & Birch, J.W. (1984). Comparison of a full-time mainstreaming program and a resource room approach. Exceptional Children, 51(1), 33-40.
- Wang, M.C., & Birch, J.W. (1984). Effective special education in the regular classes. Exceptional Children, 50(5), 391-398.
- Will, N. (1986). Educating children with learning problems: A shared responsibility. Exceptional Children, 52(5), 411-415.
- Yap, K. (1983). Effects of instructional setting and approach in compensatory education: A statewide analysis. American Educational Research Association. (ERIC Document Reproduction Service No. ED 230 645)
- Ysseldyke, J.E., Algozzine, B., Shinn, M.R., & McGue, M. (1982). Similarities and differences between low achievers and students classified learning disabled. The Journal of Special Education, 16(1), 73-85.

APPENDIX A

Kuder-Richardson Reliability Coefficients
For Total Reading CAT Scores

<u>GRADE LEVEL</u>	<u>KR20</u>
1	.94
2	.95
3	.96
4	.97
5	.97

Appendix B

CAT Total Reading NCE Scores of
Handicapped Students in Pull-out Programs

<u>Student Number</u>	<u>1992 Total Reading NCE Score</u>	<u>1993 Total Reading NCE Score</u>
001187	23	20
001124	19	24
002564	18	31
001933	27	30
000227	15	4
000935	36	41
000783	30	31
001465	39	37
001125	25	23

Appendix C

1992 CAT Total Reading NCE Scores of
Handicapped Students in In-class Programs

<u>Student Number</u>	<u>1992 Total Reading NCE Score</u>	<u>1993 Total Reading NCE Score</u>
001126	9	16
000827	56	44
000276	64	52
001448	71	40
002052	26	31
000442	41	36
000313	41	35
000741	46	37
000923	49	47