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ABSTRACT

This study compared math and reading achievement in the fifth grades of two suburban elementary schools, one which utilized a traditional approach of pull-out special education classrooms and the other which utilized an inclusion program for special education services. The Texas Assessment of Academic Skills (TAAS) was used to measure the math outcomes of 98 fifth graders and the reading outcomes of 80 fifth graders at the inclusion school, and the math outcomes of 143 fifth graders and the reading outcomes of 129 fifth graders at the traditional school. Chi square analysis reflected no significant difference in passing rates on the TAAS in math and reading between the two groups. The study concluded that the decision as to which program is more beneficial cannot be made based solely on expected academic improvements. Appendixes include a student attitudes survey instrument, data tables, and a paper on inclusion. (Contains 20 reference notes.) (DB)

EFFECTS OF INCLUSION ON ACADEMIC OUTCOMES

by

Ken Willrodt and Shirley Claybrook

A research paper

submitted in partial fulfillment of the

requirements for ASE 579 Educational Research

Sam Houston State University

August 1995

Abstract

Effects of Inclusion on Academic Outcomes

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A study was undertaken to investigate the effects of inclusion on academic outcomes. Standard achievement tests, specifically Texas Assessment of Academic Skills (TAAS), were used to measure academic outcomes at two suburban schools. One of the schools utilized a traditional approach of pullout special education classrooms; the other utilized an inclusion program for special education services. Chi square analysis reflected no significant difference in passing rates of TAAS in math and reading of fifth grade students involved in an inclusion program compared with those who were not.

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Chapter I

INTRODUCTION

General Introduction

Educators have been charged with the responsibility of educating all handicapped students in the least restrictive environment following the passage of P.L. 94-142. For years, students with moderate to severe handicaps were educated in pullout programs, while the mildly handicapped remained in the regular classroom. Changing educational philosophies and ethical arguments have brought about a movement for the integration of handicapped students to be educated with their nonhandicapped peers. Some court decisions, have further increased pressures on educators to adopt the practice of integration.[1] Many advocates for students with multiple disabilities or mental retardation endorse full inclusion, and they are frustrated because fifteen years after the passage of P.L.94-142, these students are still denied services in the regular education classroom.[2]

Understandably, a nearly universal feature of both the value-based and empirical arguments for integration emphasize the potential benefits for students with disabilities.[3] The feasibility of nonhandicapped children benefit ng from the opportunity to interact with students who have moderate to severe disabilities has been noted by observers close to integrated programs; however, limited direct study of this issue has been conducted.

Statement of Problem

The basic problem is that many educators do not believe in inclusion, its philosophy and implementation. If inclusion is a viable delivery of special education services, it must be academically and socially acceptable. And, if integrated

classrooms are to survive, then all students, or at least the majority of students, must benefit.

Purpose of the Study

For purposes of this study, the following problem is addressed: Students' math and reading scores on the Texas Assessment of Academic Skills (TAAS) reflect an increase following participation in an inclusion setting.

Significance of the Study

If inclusion programs can be developed for the betterment of students, then such programs should be considered. And, resources should be devoted to the successful practice of inclusion. If inclusion is harmful, then its practice should be reviewed.

Definition of Terms

1. P.L. 94-142. This law mandates a free appropriate public education for all children with disabilities, ensures due process rights, mandates education in the least restrictive environment and mandates Individualized Education Programs. It is the core of federal funding for special education and is used as a guideline for state laws and court decisions.

2. Inclusion. This is an educational philosophy of integrating students with handicaps with their nonhandicapped peers in school settings, as well as programs based on this philosophy with special and regular educators serving all children in the regular educational setting. Educational arrangements usually include co-teaching, co-planning, and consulting. (Refer to Appendix A: Program Model)

3. Mainstreaming. An educational arrangement by which special education students are placed in regular education classes. This arrangement may happen with or without direct intervention of special educators. Generally, students are expected to

meet expectations of the regular education classroom with modifications.

4. Pullout programs. Education of special education students in specialized classes without interaction with nonhandicapped peers.

5. Individualized Education Plan (IEP). An educational plan developed for each special education student's yearly curriculum.

6. Passing Rate. Meeting minimum standards by number of correct responses in order to satisfy State expectations of TAAS.

Null Hypotheses

There is no statistical difference in passing rates of Texas Assessment of Academic Skills (TAAS) scores in math and reading of fifth grade students involved in an inclusion program compared with those who were not.

Limitations and Delimitations

Students were chosen from Humble Independent School District (HISD). The study is delineated to the 1994-1995 fifth grade students of Whispering Pines Elementary School, who were involved in an inclusion program, and the fifth grade students of Timbers Elementary School, who were not involved in an inclusion program .

Assumptions

1. It is assumed that Texas Assessment of Academic Skills (TAAS) is a measure of academic progress.

2. It is assumed that the two elementary schools selected are comparable, with the exception that Whispering Pines had an inclusion program, and Timbers Elementary practiced a traditional special education program.

3. It is assumed that any difference of TAAS scores between the two schools is attributable to the fact that one practiced a traditional pullout program while the other

implemented an inclusion program.

Chapter II

REVIEW OF RELATED LITERATURE AND RESEARCH

Research on inclusion has been primarily devoted to teachers' attitudes toward inclusion and methods to improve those attitudes. The research base measuring attitude changes of students involved in inclusion programs is limited, and studies on the effects of inclusion on academics are rare. Successful implementation of any program depends in part on its teachers' attitudes. Former principal, Elaine L. Wilmore, writes that teacher attitudes and perceptions are critical to the successful inclusion for any child, regardless of how minor the handicap.[4] This has been a common finding of existing studies.

Siegel and Moore explored teachers' attitudes toward gifted students and students with learning problems integrated into their classrooms. A sample of 46 fourth and fifth grade teachers completed attitude questionnaires about all of their students, as well as personal data forms about themselves. The teachers' attitudes toward their gifted, special education, and typical students were compared. Teachers were more negative toward special education students compared to typical and gifted students, yet they reported significantly higher levels of concern for their special education students. Teachers with inclusion programs reported more concern for their special education students than did teachers whose special education students were "pulled-out" for services. The study concluded that since teachers' general attitudes toward inclusion did not relate to teachers' specific attitudes toward actual students, teacher training programs should not necessarily emphasize teachers' attitudes toward integration of identified groups of students.[5] In addition, Giangreco found by interviewing 19 general education teachers of grades K-9 that, despite teachers' initial

negative reactions to placement of a child with severe disabilities in their classrooms, 17 teachers (89 percent) described positive transforming experiences and identified benefits to the students with disabilities, their classmates, and the teachers themselves.[6]

Further research indicates that although teachers and parents often expressed concerns before experiencing inclusion, those who were familiar with inclusion reflected that nondisabled students benefited from their relationships with individuals with disabilities.[7] The benefits were in five areas: reduced fear of human differences accompanied by increased comfort and awareness; growth in social cognition; improvements in self-concept; development of personal principles; and warm and caring friendships. Benefits noted by Zeph, et al, included valuing differences and overcoming fears, recognizing gifts and compatibilities, developing friendships, and learning from one another.[8]

Siegel and Jausovec report that educators have determined that regular education teachers will require inservice training to increase their skills and improve their attitudes if inclusion is to be successful. Research further indicates that inservice presentations are most effective in improving attitudes, while infusing information in teacher education coursework is the least effective. Pre- and post-workshop survey data analyses indicate that teachers were receptive to the training and became more positive in their attitudes toward making changes for special needs students. While the teachers continued to resist the concept of full inclusion, they did vote unanimously to expand the inclusion portion of every school day.[9]

In some instances, inclusion has not been successful. Available research indicates that just as teachers require inservice, so do students. Social skills

intervention strategies have promoted success. Such strategies have been used on socially/emotionally maladjusted students.[10] They have also served to sensitize nonhandicapped students to their handicapped peers.[11,12]

Using meta-analysis, Baker, Wang and Walberg found that inclusion settings for the education of special-needs students yielded small to moderate beneficial effects on both the academic and social outcomes of special-needs children.[13] Social outcomes were obtained by self, peer, teacher, and observers' ratings of special-needs students' success in relating with others in the classroom. They further analyzed that the type of special-needs students or grade level revealed no consistent pattern of results differing from the overall effect. With inclusion, the effects were positive and worthwhile, although not always dramatic.

Academic outcomes (learning measures generated by standardized achievement tests) improved for students involved in an inclusion program. The average effect ranged from 0.08 to 0.44, and all outcomes were positive, suggesting that special-needs students educated in regular classes do better academically than comparable students in noninclusive settings.[14]

Unfortunately, only a limited amount of research base exists documenting the impact of inclusion on academic or developmental progress of nondisabled children. A few studies have used quasi-experimental designs to compare the progress of nondisabled children in inclusive classrooms to that of matched children enrolled in classrooms which did not include children with disabilities. These studies have consistently found no deceleration of academic progress for nondisabled children enrolled in inclusive classrooms.[15] Furthermore, Staub and Peck reported similar findings by Odom and colleagues, comparing the progress of matched groups of

nondisabled children in inclusive and noninclusive classrooms on standardized measures of cognitive, language, and social development. No significant differences in developmental outcomes were noted.[16] Finally, P. Hunt and his colleagues compared the academic achievement of nondisabled students in cooperative learning groups which either had or did not have a classmate with severe disabilities. They found no statistically significant differences between these groups or with achievement pre- and post-test scores.[17]

Billings School District #2 implemented full inclusion of students with disabilities. Achievement test data demonstrated consistent academic gains by regular education students. Students' progress toward IEP goals and objectives demonstrated achievement of annual goals in all but one or two cases, as well as phenomenal two to three year gains in several. Overall teacher attitudes tended to be neutral or slightly negative, while attitudes of teachers involved in inclusion were positive.[18]

Parents and educators, including those involved with regular education, special education, and gifted students, express concerns pertaining to inclusion.[19] Their concerns are based on inclusion programs implemented with lack of teacher training, lack of needed personnel, and programs that sacrifice needed resources to save money.

Is inclusion good or bad? According to Wilmore, it is both. Under the best of circumstances, it can be very good. With too little funding, training or development, inclusion can be a disaster.[20]

Chapter III

METHODS AND PROCEDURES

Whispering Pines Elementary School was chosen for the study because of its plan to implement an inclusion program. Since the entire fifth grade was used, a control group and experimental model was not feasible. Therefore, results from Whispering Pines needed to be compared with a school whose student population it most closely matched. Timbers Elementary was selected because of its socio-economic similarity to that of Whispering Pines.

TAAS results in math and reading were available from both schools since TAAS testing was required of fifth grade students throughout the district. Such results were tabulated and compared for this study. In math, this included 143 students from Timbers Elementary and 98 students from Whispering Pines Elementary. In reading, the study included 129 Timbers' students and 80 Whispering Pines' students.

Analysis and literature have not been released; however, TAAS is considered to be valid and reliable by the Texas Education Agency. And, although the two designated schools are comparable socio-economically, passing rates historically have been dissimilar. (Whispering Pines is a relatively new school.) When data were analyzed, this dissimilarity was mathematically discounted, and a statistical significance of .05 was selected for the study. Figure 3.1 shows the passing rate in math at the two schools, while Figure 3.2 shows the passing rate in reading.

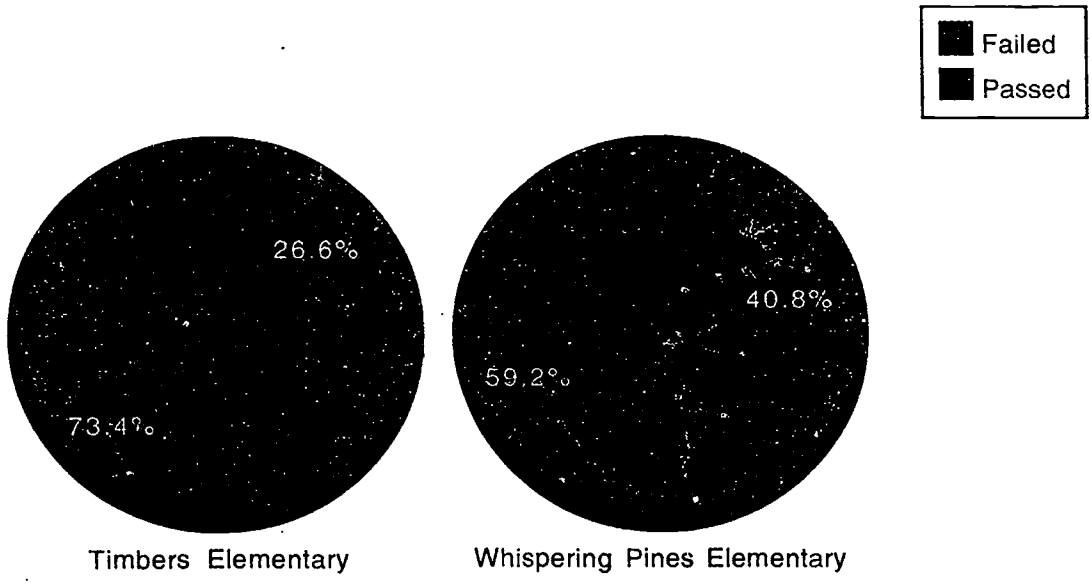

Figure 3.1

Fifth Grade TAAS math passes and failures for Timbers Elementary and Whispering Pines Elementary Schools for 1994-1995.

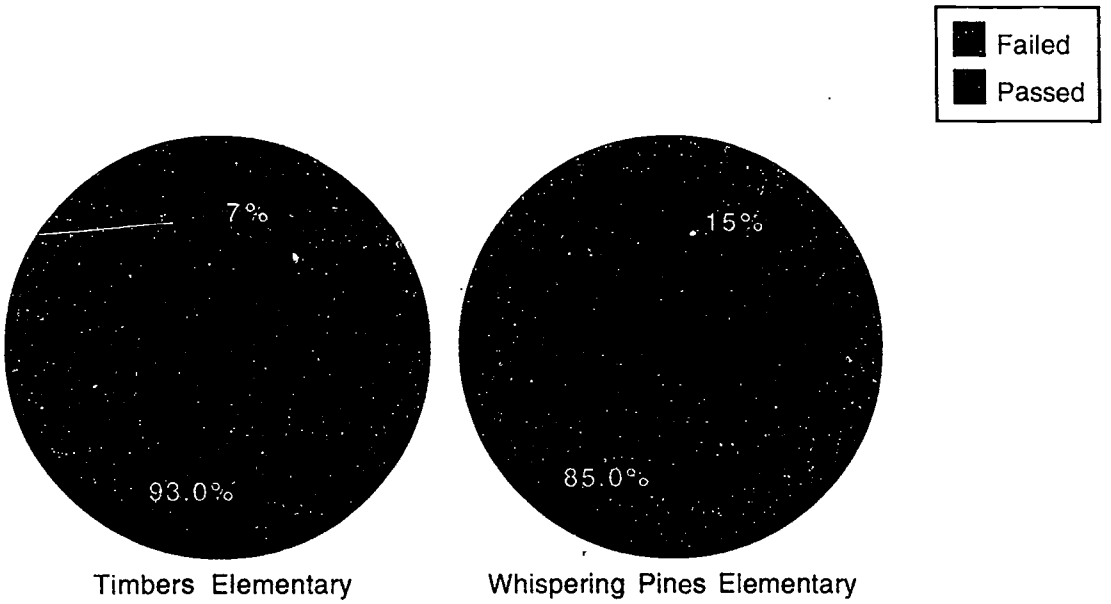

Figure 3.2

Fifth grade TAAS reading passes and failures at Timbers Elementary and Whispering Pines Elementary Schools for the 1994-1995 school year.

Chapter IV

PRESENTATION AND ANALYSIS OF DATA

Presentation

TAAS fifth grade math and reading passing rates for 1995 were compared between the targeted schools. Chi squared testing was performed on the discrete data to detect statistical significance of .05 or less.

Results of the math testing yielded a chi squared value of 5.38882, or approximately 5.39, which demonstrated a statistically significant difference. (A value of 3.084 is needed to show significance.) Further analysis, for those failing the 1995 TAAS math -- factoring in their 1994 pass/fail scores as a categorical variable held constant -- yielded a chi square value of 1.48 and a difference of .22345, or approximately .22. This demonstrates no statistical significance. Likewise, for those passing the 1995 test, factoring in their status for 1994 yielded a chi square value of 2.78 and a difference of .09554, or approximately .10, again demonstrating no statistical significance.

Results of the TAAS 1995 pass/fail rates in reading yielded a chi squared value of 3.52 and a difference of .06075, or approximately .06, indicating no statistical significance. Using the same procedure as in the math testing, holding the 1994 results constant as a categorical variable, the passing rates and failure rates yielded no significant differences. (Table 4.1 shows the chi square values, degrees of freedom, and significance.)

Table 4.1

Chi-Square Test for 1995 TAAS Fifth Grade Passing Rates

MATH

	Value	Degrees of Freedom	Significance
	5.38882	1	.02027[a]

Holding (for 1994 to 1995 test) Expected Rate Constant

	Value	Degrees of Freedom	Significance
Failing	1.48147	1	.22354
Passing	2.77853	1	.09554

READING

	Value	Degrees of Freedom	Significance
	3.51682	1	.06075

Holding (for 1994 to 1995 test) Expected Rate Constant

	Value	Degrees of Freedom	Significance
Failing	1.74474	1	.18654
Passing	2.03605	1	.15361

[a] statistical difference at the .05 level

Table 4.1 shows a significant statistical difference between the two schools' TAAS math scores. When passing expectations, based on 1994 TAAS results, are held constant as a categorical variable, then no significant difference is noted.

Analyses

The two schools designated for this study are considered socio-economically comparable. Their respective historical passing rates are not, and initial analysis reflected a statistically significant difference. Thus it was necessary to mathematically remove this variable, which was done by reviewing each student's results from the previous year, holding that constant. In other words, if a student failed the TAAS in 1994, then it was assumed that he/she would fail in 1995. Similarly, if a student passed the TAAS in 1995, he/she should have passed it in 1994. Using this analysis, each specific school's passing rate was factored out of the results so that the data could reveal the 1995 impact alone. The 1995 impact revealed no significant difference in the TAAS scores.

Since the chi square analysis yielded no significant difference, the null hypothesis is accepted, that is, there is no statistical difference in the TAAS passing rates in math or reading of the fifth grade students involved in an inclusion program over against those in a traditional program.

It was assumed that any difference in TAAS passing rates between the two schools would be attributable to the traditional pullout program versus an inclusion program. Using TAAS passing rates as a measure of benefit, harm, or status quo, students at Whispering Pines Elementary and Timbers Elementary were neither helped nor hurt by the program used on their respective campuses. According to these results, it must be concluded that the decision to implement an inclusion program cannot be made on the sole criteria of improving students' academic scores.

Chapter V

SUMMARY, CONCLUSION, AND RECOMMENDATIONS

Summary

Initial chi square analysis suggested that utilizing an inclusion program may have been detrimental to student academic outcomes in math. On closer examination, holding 1994 expectations of test results constant, no statistical difference ($p < .05$) was evidenced between the targeted schools when comparing academic outcomes as measured by the TAAS test. In reading, all analytical data reflected no significant differences. Therefore, the null hypotheses is accepted, that is, there is no statistical difference in passing rates of Texas Assessment of Academic Skills (TAAS) scores in math and reading of fifth grade students involved in an inclusion program compared with those who were not.

Conclusion

Since analysis yielded no significant differences between the use of inclusion and pullout services, the decision as to which program is more beneficial cannot be made based solely on expected academic improvement. Nevertheless, many advocates offer substantial arguments to promote inclusionary ideas.

Increased study is prerequisite in order for social scientists to establish the relative merits of these educational practices. The application of meta-analytical research methods applied to social science issues may well provide the insight required to make objective decisions in this highly emotional area.

Recommendations

Education is a complex process, and programmatic decisions should not be made based on individualized, one or two-year cross-sectional studies. Rather, longitudinal studies need to be conducted as part of a systematic evaluation and

needed. Such studies need to take into account variables such as parental support, substance abuse, peer pressure, student attitudes,and other factors outside the classroom which impact student performance. There are just too many variables which cannot be adequately controlled, but perhaps scientific research within a single school setting could help to minimize this problem. For example, one school and/or grade level in a school could be selected for study. The school or grade level would need to be divided into two basic groups, one utilizing inclusion practices and the other using traditional pullout programs. The two populations would need to be systematically matched and teachers thoroughly inserviced to insure consistency and validity.

Experiments conducted at a single school may provide insight into the possible benefits of specific educational programs, e.g., inclusion. But to be able to generalize these findings, data must be collected from diverse populations and regions, including rural, suburban, and urban schools and districts with differing ethnicity and socio-economic factors.

To decide which educational programs are effective, more research must be conducted by those with varying philosophies. It is imperative that sound teaching practices be derived from sound research. Professional educators owe it to education to conduct such research to determine which teaching practices are effective.

I would like to give special thanks to Jim Parsons for his expert help in the data analysis.

Notes

[1] Oberti v. Clemson, 995 F.2d 1204, (3rd Cir.1993).

[2] Justine Malone, "A Call for Placement Options," Educational Leadership, Dec. 1994/Jan. 1995, 25.

[3] Charles A. Peck, Jodi Donaldson, and Michele Pezzoli, "Some Benefits Nonhandicapped Adolescents Perceive for Themselves from Their Social Relationships with Peers Who Have Severe Handicaps," The Journal for the Association for Persons with Severe Handicaps, Vol. 15, No. 4 (1990): 241-249.

[4] Elaine L. Wilmore, "When Your Child Is Special," Educational Leadership, Dec. 1994/Jan. 1995, 62.

[5] Janna Siegel and Jack N. Moore, Regular Education Teachers' Attitudes toward Their Identified Gifted and Special Education Students. ERIC, 1994, ED 373 512.

[6] M. F. Giangreco, et al, "'I've Counted Jon': Transformational Experiences of Teachers Educating Students with Disabilities," Exceptional Children, Vol. 59, No. 4 (1993):P 359-373.

[7] Debbie Staub and Charles A. Peck, "What Are the Outcomes for Nondisabled Students?" Educational Leadership, Dec. 1994/Jan. 1995, 36-40.

[8] Lucille Zeph, et al., Kids Talk about Inclusive Classrooms. Creating Inclusive Educational Communities: A Monograph Series, Number 3. ERIC, 1992, ED 365 025.

[9] Janna Siegal and Norbert Jausovec, Improving Teachers' Attitudes toward Students with Disabilities. ERIC, 1994, 374 120.

10 Madge E. Shelby, Promoting Positive Attitudes between Mainstreamed SEM Students and Regular Students in an Elementary School Setting. ERIC, 1986, ED 282 627.

11 Lucille Zeph, et al., Kids Talk about Inclusive Classrooms. Creating Inclusive Educational Communities: A Monograph Series, Number 3. ERIC, 1992, ED 365 025.

12 Spencer Salend, "Using Hypothetical Examples to Sensitize Nonhandicapped Students to Their Handicapped Peers," The School Counselor, Mar. 1983, 306-310.

13 Edward T. Baker, Margaret C. Wang, and Herbert J. Walberg, "The Effects of Inclusion on Learning," Educational Leadership, Dec. 1994/Jan. 1995, 33-35.

14 Ibid.

15 Debbie Staub and Charles A. Peck, "What Are the Outcomes for Nondisabled Students?" Educational Leadership, Dec. 1994/Jan.1995, 36--40.

16 Ibid.

17 P. Hunt, et al, "Achievement by All Students Within the Context of Cooperative Learning Groups," The Journal of the Association for Persons with Severe Handicaps, Vol. 19, No. 4 (1994): 210-216.

18 Mary Susan E. Fishbaugh and Patricia Gum, Inclusive Education in Billings, Montana: A Prototype for Rural Schools. ERIC, 1994, ED 369 636.

19 Albert Shanker, "Full Inclusion Is Neither Free Nor Appropriate, " Educational Leadership, Dec. 1994/Jan. 1995, 18-21.

[20] Wilmore, 62.

Appendix A

PROGRAM MODEL

What is Inclusion?

It is not a program or a classroom; rather, it is a way of thinking. When students are pulled out, left out, or excluded, they cannot feel that they are a part of the whole. Their fate is to be on the outside looking in.

Inclusion is not mainstreaming, nor is it the provision of a helping teacher in a mainstream setting. The student with special needs is not "fixed" just because he or she is placed in the regular classroom. Whatever the setting, that student still has special needs or disabilities which must be addressed through appropriate support and services.

In the school system, the term inclusion refers to a belief where all students in the educational process have their needs met in a regular education setting. It is not used exclusively for those with identified disabilities. It takes into account all students at risk--those with specific academic or social skills shortcomings, those from different cultures who may be limited in English proficiency, and those who come from economically or educationally deprived backgrounds.

Based on a full inclusion philosophy, an experimental inclusionary model at Whispering Pines Elementary School was implemented during the 94-95 school year with a group of fifth graders. This model was conceived by the fifth grade educational team (regular and special education teachers, support team and administration) with parental acceptance. The remainder of this article will be devoted to sharing the targeted population of this implemented model, the staffing pattern, the organization of the model, exclusionary factors and the results of the model for the first year of implementation.

Targeted Population

The model was implemented with a total of 98 fifth-grade students. Of those, 24 were identified as special education students, four limited English proficiency students and fifteen general category at risk students. Handicapping conditions of the special education students included learning disabled, speech handicapped, mentally retarded, emotionally disturbed and other health impaired students.

Staffing

The key ingredients for the success of this model can be attributed to a highly motivated, willing and positive staff, a willing student body, a supportive administration, and a cooperative community, plus a lot of hard work. Without this combination the model could not have succeeded. Prior to initiating the model, grade level teachers were surveyed to determine attitudes toward inclusion and willingness to participate. All teachers involved volunteered to be part of the program. Administrators from both campus and district levels supported the model.

Two special education teachers and aides, four regular education teachers, a basic skills teacher, a speech therapist, and an extended learning teacher (gifted and talented) were selected for initial implementation. Support staff included a special education behavior consultant / psychologist, a regular education counselor, a physical therapist, an occupational therapist, and an educational diagnostician. It was interesting to note that the students viewed the special education teachers and support staff as just a part of the fifth grade teaching team.

Organization

Before the school year began, the four fifth-grade regular classes were set up to maximize the effectiveness of an inclusion model. Two classes received the majority of special education resource students, equally allocated. One of these classrooms

also received students with expressive or receptive language deficits, as well as students with limited English proficiency skills. In the remaining two classrooms were placed the majority of "at risk" students. Students identified with behavior problems were shared equally among the four classrooms, and special education students with less severe needs were evenly divided. Consideration was given to gender and ethnicity, as well. Ultimately, the four classrooms were heterogeneously grouped.

Regular classes were split. The basic skills teacher pulled half of a class one day for one hour of specific instruction in reading skills and the remaining half the following day. This process was repeated with a second class during the next two days. The special education teacher used the same procedure with the other two classes. Included in one of these groups were students identified with language processing deficits and / or limited English proficiency. When that group was pulled, the speech therapist and special education teacher co-taught, emphasizing language and spelling skills. It should be noted that students with limited English proficiency were served in their classroom by the regular education teacher who also held certification in English as a Second Language.

A strong reading program was emphasized since reading skills were considered prerequisite to all achievement and acceptability. Reading centers were set up to be used one and one-half hours per week. These centers were designed to pinpoint specific skill remediation for each student or group of students, as well as to reinforce previously taught skills. Centers encompassed listening stations, reading for comprehension in varying lengths, specific reading skills, grammar and spelling reinforcement, thinking skills and controlled oral reading. Each center was geared to the readers' appropriate levels.

All fifth graders received instruction for six weeks from the extended learning

teacher, instructing them in student selected in-depth research projects. A co-teaching model with the regular teacher was set up so that this instruction could be expanded and enriched. The librarian was helpful in increasing students' reference skills during this time as they utilized various outputs to demonstrate required objectives.

A homework hotline was established to inform parents when a student did not hand in an assignment. Study hall was implemented, allowing students to make up missing work during recess. Before school, tutorials were set up by regular and special education teachers. In addition to crisis intervention, a social skills curriculum was implemented schoolwide to increase socially appropriate classroom behaviors and decrease undesirable behaviors, as well as office referrals.

Co-instruction included language arts, science, social studies and social skills. Math instruction was addressed in a more homogeneous setting. To comply with district policy requiring an accelerated math class covering fifth grade and part of sixth grade curriculum, students changed classrooms the last hour of the day. One group attended an accelerated class while two groups went to on-level classes. The remaining class was comprised of students who needed specific skills remediation. This group was co-taught by both a regular and special education teacher. The remediation class covered the entire fifth-grade math curriculum; however, the scope and sequence were modified to better meet student needs.

The regular education teachers and the special education teacher shared the same daily planning period, which was crucial to cooperative planning. Lesson plans were turned in weekly to the special education teacher so that modifications and assessment could be appropriately handled. When scheduling permitted, the basic skills teacher cooperatively wrote lesson plans with the regular education teachers.

As a vital part of this inclusionary model, a set time was built into the program each

six weeks to review progress and plan for the weeks to come. Program direction and existing problems were addressed, and cooperatively, solutions were reached regarding the needs of individual students. Attending these meetings were the special education teachers, the four regular education teachers, administrators, basic skills teacher, educational diagnostician and counselor. Through designated district funds specifically earmarked to promote inclusionary programs, substitutes were furnished to cover classes.

Teaching modifications took into consideration students' learning styles. Visual graphic organizers were supplied. Reading, science and social studies texts were taped on auditory cassettes, highlighted books were furnished. Each story in reading was heard on cassette at least one time. Tests were modified for format and appropriate reading levels. When necessary, oral or discussion exams were given to assess content knowledge.

The special education teacher assumed the responsibility of gathering resources to address students' learning styles and levels. These included other books by the same authors, films, videos and library books on different levels related to curriculum, and information on authors and subjects to increase background knowledge.

Science curriculum experiments were developed so that students could become more actively involved, and the special education teacher co-taught with the regular education teacher to facilitate implementation of these experiments.

Exclusionary Factors

The model provided several layers of interventions, but allowed all students to remain in the regular classroom. The only pullout programs were crisis intervention, speech articulation, individual counseling, occupational and physical therapy. These services were felt to be too intrusive in the regular classroom setting and detrimental to

the student's self-esteem. Pullout programs involved less than 10 percent of the fifth grade students and comprised less than four percent of the school day for those pulled out. Near the end of the school year, additional groups were pulled out on a short term basis to address the state criterion reference testing program and related remediation.

Appendix B

COVER LETTER AND QUESTIONNAIRE

This questionnaire could be used to conduct a survey about the fifth grade students' attitudes toward themselves, their peers, and school.

August, 1995

Dear Fourth or Fifth Grade Teacher:

Please find included with this letter a set of questionnaires and scantrons for your students to complete. The results of this survey will be used to measure student attitude changes pertaining to your school's inclusion program.

The survey should be administered during the first two weeks of school. Please explain fully to your students how to correctly fill in the scantron sheets. Remember to have them use No.2 pencils.

Survey results will be compared with results received at the beginning of the 1996 school year. They will be used collectively without regard to individual teachers. Please, do not sign your names.

Return the completed scantron sheets, by August 25,1995, to your designated team leader who will forward them to me. If you have any questions, or if you would like to know the yearly results, please feel free to contact me at (713) 812-3447.

Thank you for your cooperation.

Sincerely,

Ken Willrodt
Special Education Coordinator

SURVEY OF STUDENT ATTITUDES

Directions: Please bubble in your answer for the following. Use only a No.2 pencil.

1. Grade Level: A) 4th Grade B) 5th Grade
2. Sex: A) Male B) Female
3. Race: A) White B) Black C) Hispanic D) Asian E) Other

Choices:

A) Strongly agree B) Agree C) Undecided D) Disagree E) Strongly disagree

	SA	A	U	D	SD
4. I like school.	A	B	C	D	E
5. School is better this year than last year.	A	B	C	D	E
6. School is fun.	A	B	C	D	E
7. I learn a lot at school.	A	B	C	D	E
8. School is hard for me.	A	B	C	D	E
9. I think I am nice.	A	B	C	D	E
10. Other students are nice to me.	A	B	C	D	E
11. Other students think I am a good student.	A	B	C	D	E
12. I make good grades.	A	B	C	D	E
13. My behavior is good.	A	B	C	D	E
14. I sometimes feel picked on.	A	B	C	D	E
15. School is good, but outside of school is bad.	A	B	C	D	E
16. School is good, and outside of school is good.	A	B	C	D	E
17. My homeroom teacher likes me.	A	B	C	D	E
18. All my teachers like me.	A	B	C	D	E

19. I like A) all the students in my class. C) two or three people in class.
B) most of the students in my class. D) nobody in my class.

20. My favorite thing about school is
A) study and learning C) my teachers
B) hanging out with my friends D) P.E. or music

21. School is A) hard for me B) easy for me

22. School is A) a waste of time C) important for my future

23. I am a A) good student B) average student C) poor student

24. I like myself A) agree B) disagree

Appendix C

CHI SQUARE DATA TABLES

Table C.1 shows chi square results of the 1995 fifth grade math TAAS passing rates with no indicating students that failed the test and yes indicating students who passed the test.

Table C.1

Chi Square Analysis of Fifth Grade 1995 Math TAAS

M_MINEX	Count / Exp Val / Row Pct / Col Pct / Tot Pct / Residual / Std Res	TE 1.02E+08	WPE 1.02E+08	Row Total
No	0	38	40	78
		46.3	31.7	32.4%
		48.7%	51.3%	
		26.6%	40.8%	
		15.8%	16.6%	
		-8.3	8.3	
		-1.2	1.5	
Yes	1	105	58	163
		96.7	66.3	67.6%
		64.4%	35.6%	
		73.4%	59.2%	
		43.6%	24.1%	
		8.3	-8.3	
		.8	-1.0	
	Column Total	143	98	241
		59.3%	40.7%	100.0%

Table C.2 shows the chi square results for those students who failed the 1995 fifth grade math TAAS and their performance on the 1994 test. No indicates failing the 1994 test as well and yes indicates passing the 1994 test.

Table C.2

Chi Square Analysis on those who failed the 1995 Fifth Grade Math TAAS and Their Corresponding 1994 results

M_MINEX	Count / Exp Val / Row Pct / Col Pct / Tot Pct / Residual / Std Res	TE 1.02E+08	WPE 1.02E+08	Row Total
0 No		33	33	66
		36.3	29.7	55.0%
		50.0%	50.0%	
		50.0%	61.1%	
		27.5%	27.5%	
		-3.3	3.3	
		-.5	.6	
1 Yes		33	21	54
		29.7	24.3	45.0%
		61.1%	38.9%	
		50.0%	38.9%	
		27.5%	17.5%	
		3.3	-3.3	
		.6	-.7	
Column Total		66 55.0%	54 45.0%	120 100.0%

Table C.3 shows the chi square results for those students who passed the 1995 fifth grade math TAAS and their performance on the 1994 test. No indicates failing the 1994 test and yes indicates passing the 1994 test.

Table C.3

Chi Square Analysis on those who passed the 1995 Fifth Grade Math TAAS and Their Corresponding 1994 results

	Count / Exp Val / Row Pct / Col Pct / Tot Pct / Residual / Std Res	TE	WPE	Row Total
		1.02E+08	1.02E+08	
M_MINEX	0	5	7	12
		7.6	4.4	9.9%
No		41.7%	58.3%	
		6.5%	15.9%	
		4.1%	5.8%	
		-2.6	2.6	
		-1.0	1.3	
	1	72	37	109
		69.4	39.6	90.1%
Yes		66.1%	33.9%	
		93.5%	84.1%	
		59.5%	30.6%	
		2.6	-2.6	
		.3	-.4	
	Column Total	77	44	121
		63.6%	36.4%	100.0%

Table C.4 shows chi square results of the 1995 fifth grade reading TAAS passing rates with no indicating students that failed the test and yes indicating students who passed the test.

Table C.4

Chi Square Analysis of Fifth Grade 1995 Reading TAAS

	Count / Exp Val / Row Pct / Col Pct	TE 1.02E+08	WPE 1.02E+08	Row Total
R_MINEX				
No	0	9	12	21
		13.0	8.0	10.0%
		42.9%	57.1%	
		7.0%	15.0%	
Yes	1	120	68	188
		116.0	72.0	90.0%
		63.8%	36.2%	
		93.0%	85.0%	
	Column Total	129	80	209
		61.7%	38.3%	100.0%

Chi-Square	Value	DF	Significance
Pearson	3.51682	1	.06075
Continuity Correction	2.68514	1	.10129
Likelihood Ratio	3.40660	1	.06494
Fisher's Exact Test:			
One-Tail			.05226
Two-Tail			.09533

Minimum Expected Frequency - 8.038

Number of Missing Observations: 0

Table C.5 shows the chi square results for those students who failed the 1995 fifth grade reading TAAS and their performance on the 1994 test. No indicates failing the 1994 test as well and yes indicates passing the 1994 test.

Table C.5

Chi Square Analysis on those who failed the 1995 Fifth Grade Reading TAAS and Their Corresponding 1994 results

	Count Exp Val Row Pct Col Pct	TE 1.02E+08	WPE 1.02E+08	Row Total
R_MINEX				
No	0	5 6.9 45.5% 12.8%	6 4.1 54.5% 26.1%	11 17.7%
Yes	1	34 32.1 66.7% 87.2%	17 18.9 33.3% 73.9%	51 82.3%
	Column Total	39 62.9%	23 37.1%	62 100.0%

Chi-Square	Value	DF	Significance
Pearson	1.74474	1	.18654
Continuity Correction	.95412	1	.32867
Likelihood Ratio	1.69147	1	.19341
Fisher's Exact Test:			
One-Tail			.16412
Two-Tail			.30167

Minimum Expected Frequency - 4.081
Cells with Expected Frequency < 5 - 1 of 4 (25.0%)

Table C.6 shows the chi square results for those students who passed the 1995 fifth grade reading TAAS and their performance on the 1994 test. No indicates failing the 1994 test and yes indicates passing the 1994 test.

Table C.6

Chi Square Analysis on those who passed the 1995 Fifth Grade Reading TAAS and Their Corresponding 1994 results

R_MINEX	Count / Exp Val / Row Pct / Col Pct	TE 1.02E+08	WPE 1.02E+08	Row Total
No	0	4 6.1 40.0% 4.4%	6 3.9 60.0% 10.5%	10 6.8%
Yes	1	86 83.9 62.8% 95.6%	51 53.1 37.2% 89.5%	137 93.2%
	Column Total	90 61.2%	57 38.8%	147 100.0%

Chi-Square	Value	DF	Significance
Pearson	2.03605	1	.15361
Continuity Correction	1.18975	1	.27538
Likelihood Ratio	1.97254	1	.16018
Fisher's Exact Test:			
One-Tail			.13823
Two-Tail			.18665

Minimum Expected Frequency - 3.878
Cells with Expected Frequency < 5 - 1 of 4 (25.0%)

Number of Missing Observations: 0