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Inclusion in the Middle School Science Classroom

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INCLUSION IN THE MIDDLE SCHOOL SCIENCE CLASSROOM

FINAL THESIS

Submitted to the Graduate Committee of the
Department of Education and Human Development
State University of New York
College at Brockport
in Partial Fulfillment of the
Requirements for the Degree of
Master of Science in Education

by

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INTRODUCTION

Public education of all students in the United States was not mandated by law until the early part of this century. Prior to the passage of compulsory educational attendance laws between 1852 and 1918, formal education was most often the privilege of the wealthy and members of higher social classes. The compulsory educational attendance laws required the establishment of free educational institutions for all children, and as a result the public school system was born.

Public schools did not, however, open their doors equally to all children. The establishment of separate schools for children of different races, for example, was commonplace. Racial segregation of public schools was eventually contested in the courts. It was denounced as unconstitutional in the 1954 United States Supreme Court opinion handed down in the case of *Oliver Brown, et al v. the Board of Education of Topeka*. In handing down his opinion, the presiding Chief Justice, Earl Warren, cited the evolving public education system as the foundation of good citizenship. He further stated that due to its importance and value, education must be made available to all children on equal terms (Kluger, 1976).

Still, education of handicapped children was not equal to that offered to the non-handicapped. Children with educational handicaps were not welcomed into the neighborhood schools. The earliest educational practices for handicapped children involved institutionalization. The compulsory educational attendance laws of the early 1900s required more children with disabilities to attend school. The school's inability to handle this influx of children with handicapping conditions led to a movement to develop special schools and classes to meet the needs of these students. Special education classes in day treatment clinics, residential

settings, and within the public schools, were the accepted means for educating children with disabilities through the 1960s (Sigmon, 1987).

In the late 1960s, some educators began to question the segregation of disabled students in self-contained special education classes. Burton Blatt (1982) may have been among the first to publicly question the benefits of self-contained classes to the students being served by them. His studies did not find significant differences in benefits to the students between handicapped children in special classes and those in regular classes. The observations of Blatt and others led to significant changes in US education.

Philosophies about how to best educate children with disabilities have been transformed dramatically over the last century. Students with mild handicaps or learning disabilities progressed from zero formal education to residential placements and day school programs in the early 1900s. As the 1960s approached, students were educated in one of two separate systems; handicapped or non-handicapped. While there were many advocates for changing the segregated system of education to one that would provide for a continuum of educational delivery models, real change was not effected until the passage of Public Law 94-142 in 1975 (Reynolds, 1989).

PL 94-142, the Education for All Handicapped Children Act (EAHCA) of 1975, required, by law, the free and appropriate public education of all students. The EAHCA provided federal moneys to states for compliance with the law to help fund necessary programs (Turnbull, 1993). The law also recognized that segregation of these students was inherently stigmatizing, created a "self-fulfilling prophecy" of lower performance academically and socially because of lower expectations, and did not recognize the value of peer interaction. To combat these issues, the law further stipulated that the education of these students should occur in the least restrictive environment possible (Rothstein, 1990). In

the 1980s, PL 94-142 was further bolstered by the passage of the Regular Education Initiative (REI). Advocates for PL 94-142 found that segregated programs, including separate resource rooms, did not benefit disabled students. Because of this, stronger arguments in support of moving students with disabilities into the regular classroom were written into the language of the REI.

Out of PL 94-142 and the REI came the current movement toward full inclusion of all students with disabilities into the general education setting. The primary goal of inclusion is to give students with disabilities the opportunity to participate in the total school community, while receiving instruction in academic, social and emotional skills that will enable them to later function as a part of the community at large (Lockledge & Wright, 1991). Advocates for full inclusion stress the importance of providing a placement continuum on which students move from the most restrictive educational setting, the hospital or institution, to the least restrictive setting, the general education classroom (Underwood, 1993). Options along the continuum may include residential schools, special day schools, self-contained full-time special education classes, regular classes supplemented with part-time resource room assistance and regular education classes with a special education teacher consultant. Again, the emphasis is that the placement be the one that is in the least restrictive environment (LRE) and the most appropriate for the unique needs of the individual student being placed (Rothstein, 1990).

The purpose of this study will be to examine the LRE placement in the full inclusion classroom. Is inclusion an effective way of meeting the educational and social needs of students with disabilities? Who are the actual beneficiaries of such a program?

Methods of study will include a partial review of the academic literature, as well as a case study following the academic and socio-emotional progress of two

special education students and their teachers as first-time participants in an inclusion setting. The students in this study participated in a seventh grade life science inclusion class. In addition to interviews with the two students and a review of the cumulative education records, a survey of attitudes toward the inclusion program by all participating students will be utilized to demonstrate the benefits of inclusion for all students. The study will further describe how the seventh grade life science curriculum lends itself to the practice of inclusion, and the types of modifications made by the participating teachers to the curriculum and materials.

REVIEW OF THE LITERATURE

The current literature regarding the education of students with disabilities in the mainstream classroom is extensive. The following review of the literature focuses on only a small part of the available information: Defining the terminology used to discuss inclusion, and identifying the key issues surrounding the inclusion of special education students in the mainstream classroom. This survey of the literature will allow conclusions to be drawn about educating learning disabled students in the mainstream and the most appropriate delivery models for doing so.

Defining the Terminology

The first priority in beginning a review of the literature related to inclusion is to set forth definitions of the various terms used in the discussion of the topic. In many instances, the terminology is not discrete, and the same term may erroneously be applied to several distinctly different delivery models (Gallagher, 1990). For the purpose of consistency, the terms: inclusion, team-teaching, co-teaching, collaboration, mainstreaming, and consultation, will be used as defined by the National Education Association (NEA) (1992).

Inclusion is the education of all special education students in the regular classroom for a majority of the school day. A special education teacher attends classes with these students. The special education teacher is responsible for the modification of materials and curricula to meet the individual needs of students with disabilities. In many cases, the special education teacher assumes the role of co-teacher with the regular education teacher. This collaborative relationship places the responsibility for educating all students on both teachers in the classroom (Cosden, 1990).

Team-teaching and **co-teaching** refer to the shared teaching responsibilities of the regular and special education teachers. This relationship fosters cooperation, problem solving and shared decision-making; social skills which can be modeled positively for students (Trent, 1989).

Collaboration is defined as a partnership between regular and special education in which the dual system of education is eliminated and ownership of the problems of all students is shared by both teachers (Gallagher, 1990). There are varying levels of collaboration ranging from the special education teacher serving as a classroom helper, to full shared responsibilities for planning and implementing lessons by the special education and regular classroom teacher (Gately & Gately, 1993).

In Sternlicht (1987) **mainstreaming** was defined as teaching exceptional children together with normal children and providing them with any special services required. The NEA report defines mainstreaming as the placement of students with physical, emotional, or learning disabilities into integrated classes. These students may have modified program needs which are addressed by the regular education teacher. Support is provided by a resource room teacher in pull-out programs (Friend & Cook, 1992).

Consultation is also used to facilitate the learning of special education students in the regular classroom. In this delivery model, the special education teacher serves as an expert in learning styles and special education skills, advising and providing training to regular education teachers as needed (Cole, 1992).

These terms are often interchanged in the literature, leading to much of the confusion surrounding the issue of inclusion. As is often true when new ideas are proposed, the lack of clarity in discussions about what is meant by inclusion has led to feelings of apprehension and skepticism by teachers and

administrators (Pearman, et al., 1992). Studies by Plas and Cook (1982) show that teacher attitudes toward students can effect student performance. The positive attitudes toward special education students of teachers and administrators in schools considering inclusion are imperative to the success of inclusion programs.

Key Issues in Inclusion

This review of the literature describes the current status of educating students with special needs, the effort and support required to meet the needs of these students in the mainstream classroom, and reasons for choosing inclusion as the preferred delivery model.

Much of the controversy surrounding inclusion stems from the large numbers of students being considered for inclusion in the general education classroom. There is a growing sense of diversity in today's classrooms. It is estimated that by the year 2000 children from diverse ethnic, socio-economic, and family backgrounds will make up nearly 40 percent of the total school population (Johnson et al., 1990). In their research Johnson, Pugach, and Devlin (1990) found that many students from diverse backgrounds do not perform well in school. Traditionally, students who are not successful in the regular education classroom are served through special education pull-out programs. Additionally, more students are being diagnosed as requiring the services of special education (Gallagher, 1990). The concern over the additional diagnoses is furthered by the lack of clear criteria in determining student placement in inclusion or pull-out programs (Pearman et al., 1992).

The most common model of service delivery for students with learning disabilities (LD) is currently the self-contained classroom (Baker & Zigmond, 1990). In this model the students and the teacher are essentially isolated from

the rest of the school community. Lacking external support, the special education teacher feels stress from being asked to produce positive results while working with the most difficult students in the school (Cosden, 1990). It has also been shown that the special education students' self-perception is directly linked to their perceived acceptance by peers (Lockledge & Wright, 1991). Placing these students in self-contained classrooms for their academic subjects and mainstreaming for specials such as art, music, lunch and recess perpetuates the perception that these are "dumb" kids (Lockledge & Wright, 1993). These studies suggest that the most appropriate and least restrictive environment prescribed by PL 94-142 is not the self-contained special education classroom. Rothstein (1990) describes the importance of peer interactions among children of all abilities. Her work discusses the intellectual and social needs of special education students, and the ability of modeling to provide these students with age-appropriate developmental experiences only when they are subjected to age-appropriate peer relationships. Sigmon (1987) also addresses this issue in discussing the loss of academic diversification and extra-curricular activities that occur with the segregation of special education students.

Getting students and teachers out of isolation in the special education classroom presents a new problem for schools. DeRoma-Wagner (1990) and Stoler (1992) believe that schools should be moving toward a collaborative method of service delivery which would apply the mandates of PL 94-142 to all students, regardless of labels. It is their belief that with the placement of special education students and educators in general classes, all students will benefit from the collaborative relationship formed between the delivery teachers.

Regular education teachers are classroom experts in their specific fields, but very few have training in special education methodology. While many regular education teachers agree that schools which segregate special education

students from the mainstream are depriving all students of the experiences in diversity that they will encounter in real life, the teachers do not feel prepared to educate special needs students in their classrooms (Stoler, 1992). The discomfort is not felt by general education teachers alone. In a study conducted by Bostelman (1993) it was found that while special education teachers would be willing to work collaboratively in inclusion classes if provided training, most would prefer the modified self-contained classroom delivery model for special education services. These barriers to collaboration must be addressed by schools if inclusion is to be successful.

The breaking down of barriers can only occur through cooperative efforts from all parties involved in this issue. The research shows that the implementation of inclusion is a complicated process and requires training in specific areas to be successful (Cole, 1992). Administrators need to be willing to provide in-services to faculty in adolescent development, individual differences, cognitive development and learning theory, the nature of learning disabilities, and most importantly, the process of collaboration (Barton, 1992). The work done by Barton also stresses that opposition to change is the norm in public schools, and that the territorial mind set of teachers who have long worked in autonomy must be changed. Collaborating teachers need administrative support and resource allocation. Time constraints for planning, adequate numbers of support personnel, including aides, and the availability of classroom space for collaboration must also be addressed by the administrator. Teachers need to work cooperatively to reevaluate the method of curriculum delivery to best meet the needs of all students. Newly collaborative teachers will require a great deal of time to develop comfortable roles for each participant in the process. Time must also be allotted for reviewing and redefining these roles as the relationship progresses (Johnson, et. al., 1990).

The research is filled with controversy over the issue of inclusion. Much of that which is negative derives from topics already addressed; lack of time to plan for successful collaboration, traditionally isolated classroom settings (the sense of territory felt by many educators), the non-ownership of special education students by mainstream teachers, insufficient training of the educators to be involved in the process, and a general feeling of negativity toward change of any kind.

The literature also abounds with examples of positive results of inclusion for all parties involved; special education teachers, mainstream teachers, regular education students and special education students. Friend and Cook (1992) cite the increased cohesiveness of the learning experienced by special education students receiving instruction in an inclusion setting. The special education teacher is able to make remediation more meaningful and relevant by knowing exactly what has been presented in the mainstream classroom. The inclusion of special education students and teachers within the mainstream increases their feeling of belonging to the school community. This has led to less teasing among peers and a greater sense of interdependence (Lockledge & Wright, 1991). In maturing collaborative teaching relationships, the teacher participants begin to share responsibilities for planning and presenting lessons, improving communication and trust as a partnership develops (Gately & Gately, 1993). Children of diverse needs benefit from having two instructors in the classroom. All students receive the expert services of the special educator who is well trained in learning styles and in modifying curricula to meet individual needs (Needles, 1991). Mainstream teachers and special education teachers derive many benefits from the collaborative relationship, including shared resources and labor, decrease in professional isolation, and increased motivation and creativity sparked by the relationship (Cole, 1992). The knowledge required to educate students of diverse needs may be more than is feasible for one teacher to

master, but the development of a team of collaborating teachers would increase the likelihood that the spectrum of knowledge and skills required would be available to benefit all students (Reynolds, 1989).

Summary

The use of discriminate terms to describe and discuss the different models of delivery for educating special education students in the mainstream classroom can be helpful in clearing up many of the misunderstandings felt by parents, educators and administrators about the delivery options available. The clear definitions provided by the NEA allow all participants in the education process to discuss, with confidence, the advantages and disadvantages of each delivery model and to make the most appropriate placement choice for each student.

The establishment of a continuum of delivery models which allows students to be placed in the LRE most suited to their individual needs should undoubtedly incorporate the inclusion model of delivery. Bringing special education students and their teachers into the mainstream classroom provides benefits for all parties involved. This type of program has been shown to be successful when adequate planning time, resources, in-service training and administrative support are provided to the educators.

CASE STUDY

This study follows the progress of two students enrolled in a small, rural school district in Upstate New York and their teachers and classmates during the first year of implementation of an inclusion program. The study will include background information on the study participants, describe the study setting and examine modifications made to the academic program to accommodate the inclusion students. Remarks from an interview conducted with the study subjects at the conclusion of the study period, participating teacher comments and the results of an attitude survey administered to the regular education students during the study period are also included in the study.

Study Subject Histories

The study subjects, who will be referred to as Jenny and Joe, were both previously identified by the district's Committee for Special Education Services. They were both labeled as learning disabled. Prior to the study both were educated in self-contained special education classes for all academic subjects. They were mainstreamed with the general school population for art, music, physical education and lunch periods.

During the study year, Jenny and Joe remained in self-contained classes for math and English. They attended regular seventh grade life science and social studies classes with the special education teacher in an inclusion setting. The reasons for the change in placement from self-contained to inclusion classes were documented in each student's Individual Education Plan (IEP): to provide diversified academic experiences, to improve the feeling of belonging to the school community, and to provide students with positive age-appropriate role models through peer interactions. Each student came into the study group with different social and academic backgrounds.

Jenny had a history of low self-esteem documented throughout her schooling. Her family underwent a difficult divorce during her second grade year. She did not develop trusting relationships easily with adults or peers (it should be noted that Jenny was the only girl in her self-contained classes for many years). Academically, Jenny exhibited difficulties in remaining on task. She was achieving 1.5-2.5 years below grade level skills in math, reading, spelling and science. Jenny also had weak short term memory abilities. Until the fifth grade Jenny required a behavior-management system. During this year she was moved from a class with six pupils and one teacher, to a 15:1:1 class (fifteen students, one teacher, one classroom aide); her behavior improved in the larger class setting and the behavior modification system was rescinded. Jenny's fifth grade teacher saw her as hardworking academically and improving in her efforts to maintain positive peer relationships.

Joe was described as a very likable and happy young fellow by many of his elementary teachers. He was a daydreamer and a fidgeter, who often appeared as though he were in his own world. He had few, but strong, positive peer relationships throughout his schooling. Joe's records indicated an inability to keep his attention focused on task. There were many citations in his records of Joe rushing to finish work without any attention to quality. Joe was following a structured behavior management system, which included a daily behavior chart being sent home to his parents. Use of medications to facilitate Joe's ability to remain focused were recommended, but Joe's parents declined to pursue this option. At the end of Joe's fifth grade year his teacher recommended, with reservations, that he continue to follow an academic based program in a 15:1:1 class. Academically, Joe was achieving 1.5-2.3 years below grade level in all subject areas, with the strongest difficulties in mastering verbal material, reading and spelling. Joe's teachers noted a positive attitude towards his friends and

family. He was well liked by his classmates. Joe's fifth grade teacher noted his enjoyment of cooperative learning activities. While making the recommendation for promotion to a 15:1:1 class for the sixth grade, this teacher expressed concerns about his abilities to handle the work academically (Joe was then working at 1.7 and 1.9 grade level equivalents in reading and spelling) and based her recommendation for promotion as being necessary for Joe's social development.

Study Setting

When the district decided to implement the inclusion program at the middle school level the administration met with the faculty to determine which subject areas would participate in the trial year of the program. After completing several in-service training sessions a decision was made to begin with the inclusion of special education students in the mainstream science and social studies classes at the seventh grade level. These subject areas were chosen because the curricula could be easily adapted to many different learning styles. The teachers in these areas already had some experience with mainstreamed special education students and were willing to make modifications to their own teaching styles to meet the needs of the inclusion students. Both teachers already incorporated a variety of learning experiences including hands-on activities and cooperative learning groups in their classes.

At the beginning of the academic year, Jenny and Joe were registered for and enrolled in a regular seventh grade life science class. The regular class was heterogeneously grouped. The class section that Jenny and Joe attended was composed of fifteen regular education students, four special education students mainstreamed in the course, and three special education students who were part of the inclusion program (the third inclusion student left the district after the first

month of the school year so he was dropped from this study group). The regular education teacher for this class taught four other sections of the course with a total of 102 other students including six mainstreamed students. The special education teacher participant was responsible for the entire population of special education students currently enrolled in the seventh grade. In addition to co-teaching science and social studies in inclusion classes, this teacher gave direct instruction in math and English, and provided resource and support services during student study periods.

In pre-planning for the inclusion experience, it was agreed upon by both participating teachers that Jenny and Joe would be considered as full members of the class. Expectations for behavior and class participation in activities during class time would not be modified from those expected of other members of the class. To the fullest extent possible, Jenny and Joe would be required to complete the same assignments as their classmates. Support to complete assignments, particularly those that required more extensive reading from the text or other sources, would be provided during study periods or incorporated into English lessons. Tests and quizzes would be administered in the special education classroom with time limits waived and modifications made to format when necessary.

Ideally, in the team-teaching practice being established in this initial year of the inclusion program, one teacher would always be available to move through the classroom to monitor the students. After much discussion about behaviors that could be expected from these students and management techniques that would be effective in preventing problems or in coping with any problems that did arise, it was decided that both teachers would be responsible for behavior management. At the same time, it was agreed that the special education teacher

would have equal authority and responsibility in the classroom over the behaviors of the regular education students.

The teachers' daily schedules were arranged by the administration so that the special education teacher would share the common team planning period with the other core-curriculum teachers in the seventh grade. This schedule allowed the special education teacher to serve as a consultant at weekly team meetings, sharing her expertise in learning styles and in identifying students' individual needs with the core-curriculum teachers. This allowed her to share her expertise in this area, not only for those students classified as needing the services of special education, but for all students. It also provided for a common planning time for the life science teacher and the special education teacher on a daily basis.

Initially, it was decided that the science teacher would be responsible for outlining the weekly class schedule and for providing curriculum materials to carry out lesson objectives. During a dedicated time each week, the teachers would review the proposed outline together, and make modifications as deemed necessary.

Initial Study Observations

As the academic year began, it became apparent that there were some flaws in the initial arrangement for the participating teachers and students alike. The intent of the described collaborative relationship was to allow the regular education teacher to act as expert on matters of curricula, and for the role of the special education teacher to be played out as a true specialist in learning styles. This arrangement, however, placed the burden of planning for the inclusion class on the science teacher, and often left the special education teacher feeling more like a student in the class; learning unfamiliar content, or facing familiar content at

new depths. Instead of creating an inclusion class in which two teachers served as positive role models for a diverse student body, the same science class that existed before the implementation of inclusion was being delivered to the students, but now there was a mysterious extra teacher in the room for one period per day. Jenny and Joe were also a part of the mystery, for while they attended class every day, they did not participate in group discussions and often did not choose partners for labs and activities. They were very much at ease with knowing that they would be able to do any classwork during a study period and that they would get individual help with activities outside of class time in the special education classroom. Other students in the class knew that they had “their own” teacher, and did not select them to be a part of group activities.

Two months into the school year, as each teacher became more comfortable with the concept of team-teaching and with each other’s expectations for the class, some changes were proposed. Planning for all lessons became a shared responsibility. This allowed the special education teacher to feel more ownership for the course content and to provide more insight into why certain modifications in handouts or presentation should be made. It allowed the science teacher to review material with the special education teacher prior to class presentation, and gave more opportunities for both teachers to discuss class behaviors. This new shared responsibility enabled both teachers to feel more comfortable with switching roles in the classroom. These changes stimulated true collaboration between the participating teachers and enabled Jenny and Joe to function as a genuine part of the class.

Classroom Modifications

With the expertise of the special education teacher as impetus, lessons became even more hands-on oriented. Visual aides such as videos, charts and

posters took on a more central role in the presentation of materials to the class. Work shifted away from individual student product toward more cooperative activities. Assignments which called for reading from the text were now done as part of an assigned co-op group or read aloud as a class. Breaking away from the traditional practice of assigning members to heterogeneous cooperative learning groups, Jenny was placed in a group with three other girls; one average student and two high-achieving students. Jenny had little self-confidence in her own academic abilities, but it was felt that this group of highly motivated girls would provide positive role modeling for her. Since enrolling in the course Jenny had made many inappropriate efforts to form peer relationships with the girls in her class (she was still the only girl in the special education program at her grade level). After several weeks of admonishments for talking and writing notes during class, Jenny was now being given the opportunity she needed to interact with her peers in an appropriate manner. Joe was placed in a group with two girls who were average students and a very high achieving boy. Because of his difficulties with reading comprehension and spelling or decoding, Joe was often assigned the role of time-keeper or group motivator for cooperative group activities. The periodic mixing up of co-op groups gave Jenny and Joe opportunities to interact with more of their classmates. In the mixed groups, each member was given a fact or piece of information to take back to the original group. Returning to their "home groups" allowed Jenny and Joe to bring new facts or information to their group and increased their sense of being able to contribute to the group and the class. This kind of arranged success was important in helping Jenny and Joe to develop self-confidence in front of their peers.

Reading material aloud from the text continued to be a problem. Jenny's reading abilities were not far below those of her classmates, but she lacked the self-confidence to read aloud in front of her new friends; acceptance by her peers

was Jenny's highest priority. Joe was reading at a first grade level, but he was often willing to try to read aloud. A system for reading aloud was established for the class in which students would take turns reading a paragraph or two, and the turn would circulate through the room in a predetermined order. Each student in the class was allowed one "pass" of turn during each reading assignment. This format allowed students to look ahead and determine, usually based on the length of the paragraph or the extent of the vocabulary in it, if they would like to read or pass. Additionally, one of the teachers would stand near the student reader to prompt him or her on vocabulary terms. This across the board prompting proved to be very useful in encouraging Jenny and Joe to read aloud as they were not being treated differently from their classmates.

Jenny and Joe were provided a complete set of notes for class lectures by the special education teacher. It was found that very few modifications to existing handouts and class activity materials were needed. Those that were made were generally designed to break large tasks or assignments into smaller component tasks, each with its own set of directions, which could be completed together or separately to fulfill the assignment requirements. Because of the changes made in the teachers' scheduled planning times, most of these alterations were made in advance and when appropriate, were made for the entire class. Test modifications included breaking matching sections down into manageable pieces (no long lists of choices), providing word banks for completion sections and increasing the amount of spacing between questions and sections on the written test document. None of the modifications made for any student altered the content of the material being presented. It was found that modifications in the quantity and quality of the curriculum being presented were unnecessary as long as support was offered to the special education students during study periods.

Interview Remarks

At the end of the academic year, Jenny and Joe were given an opportunity to comment and share their perceptions of the inclusion experience. The following is a summary of their comments and responses to questions about the experience.

Jenny and Joe were asked to describe how they felt about being placed into the regular education class. Both said that they had felt some initial apprehension about going into such a large class and about not knowing most of the other students in the class. They expressed concerns about being treated differently and being made fun of by their new classmates. While they cited different time frames for beginning to feel comfortable in the class, it took no more than a couple of weeks for each of them to feel at ease in the class.

When asked about the types of new activities that they participated in, that might have been missed out on in a self-contained class, they shared different observations. Joe enjoyed doing lab activities and being part of a group for many assignments. Jenny described her experiences from a class field trip and was especially pleased with the number of new friends she made in the class.

Academically, Jenny and Joe felt that they were challenged more in the mainstream class. They explained that it was more difficult because there were more students in the class and more assignments were required. The class required a lot more note-taking than their previous self-contained classes. In spite of this, Joe felt that he did much better in the larger class because he was singled out less, had a lot of support from his peers during class and received reinforcement during study hall periods. He stated that he paid better attention in class and was better behaved because he didn't want his peers to make fun of him. Jenny admitted that her grades were really not any better than they had been in the smaller class, but she also quickly accepted responsibility for this,

saying that she didn't work as hard as she could have because she was spending much of her time socializing with her new friends (she quickly named four girls from the inclusion class). For Jenny, it was very important that it be known that even though her grades were not better, she was doing the "regular stuff". Doing the same work as her peers meant that she could get help on assignments from her friends without relying so much on the services of the special education teacher. Jenny developed her own network of peer tutors.

While both students worked hard at becoming more independent of the special education teacher outside of class time, neither felt at all apprehensive about receiving attention from the special education teacher during the inclusion class. This kind of attention did not make them feel singled out because she also helped other students in the class. They both enjoyed receiving help from the regular education teacher because they were being treated just like everyone else.

Jenny and Joe were asked if they would like to participate in an inclusion class again in the following academic year. Both answered with a resounding yes. They liked the textbook and lab activities, felt that they learned a lot and made many new friends. The teachers and other students did not treat them as "special" students. They were able to participate in more and had fun. They would recommend this kind of class to any other kids.

Survey of Student Attitudes

To help evaluate the effects of the inclusion program on the regular education students who participated in the class, a survey was developed and administered to the students (see Appendix A). The survey asked students to anonymously answer twenty questions that would rate their attitude toward the inclusion program as a whole, the special education student participants, and the

presence of the special education teacher in the classroom. The survey respondents were asked to rate the answer to each question on a scale of one to five, with five being the highest score. The responses to several of the survey questions (#7, 9, 10, 11, 12, 15 and 17) were reversed when the survey results were tabulated so that a high score of five would always indicate a positive attitude toward inclusion.

Because no pre-test was administered at the start of the study, it was decided to administer the attitude survey to two distinct groups of students; those who had no experience with the inclusion program (Group A), and those who had experienced the first-year inclusion program in a science or social studies class (Group B). Group A consisted of 40 students and Group B consisted of 49 students. With the exception of the special education students involved (none completed the survey), all of the students were randomly scheduled into heterogeneously mixed classes. It was therefore assumed that any differences in the survey results obtained for Group A and Group B could be attributed to the experience, or lack of experience, with the inclusion program.

The survey results from each group were analyzed to determine whether or not a significant statistical difference existed between the measured attitudes of the two groups. To prove the results with only a small percent chance of error, the 95% confidence level was used in this analysis. The statistical work up of the survey results is recorded in appendices B and C.

When the survey was administered to the students, it was hoped that the analysis of the results would fail to support the hypothesis: There is no statistically significant difference between the attitudes of the two study groups toward inclusion.

Scores from the survey could range from a least positive attitude of 20, to a most positive attitude of 100. The mean score for Group A (no inclusion

experience) was 56.0, with a standard deviation of ± 6.84 about that mean. The mean score for Group B (inclusion experience) was 63.2, with a standard deviation of ± 7.38 about that mean. The t value required to prove the hypothesis at the 95% confidence level is ± 1.988 . The t value obtained from the results was -4.461. This means that the hypothesis should be rejected and that there is a statistically significant difference between the attitudes of the two study groups toward inclusion of special education students in the mainstream classroom.

The survey results indicate that regular education students who take classes in an inclusion setting with special education students develop a more positive attitude toward the special education students than do students who are not a part of the inclusion experience.

Teacher Comments

At the conclusion of the study period the regular education teacher and the special education teacher were asked to reflect on the inclusion experience and to describe any benefits of the program or concerns about inclusion of special education students in the mainstream classroom.

Both teachers expressed an overall feeling that the program had indeed been successful in its first year. The special education teacher summarized the academic and socio-emotional progress made by the study subjects, Jenny and Joe. She felt that academically both students had made many positive gains over the course of the year and attributed much of this to their desire to be viewed as a part of the class by their peers. They were strongly motivated to achieve with as few modifications to their academic programs as possible and to be recognized as participants within the class. Having worked with Jenny and Joe previously in a self-contained setting, the special education teacher was particularly impressed by her students' efforts to complete assignments on time

and to turn in their work along with that of their classmates. Socially and emotionally the teacher witnessed a tremendous amount of growth in Jenny and Joe in the areas of self-confidence and coping with peer relationships. Both students developed and were able to put into practice social skills which will benefit them in many areas of their lives.

Throughout the course of the academic year, both teachers were able to observe a decrease in the amount of teasing in the classroom as much of the stigma of special education was eased. This also seemed to carry over into hallway behaviors as Jenny and Joe reported fewer complaints of problems with peers during the passing time between classes.

The regular education teacher reported feeling much more at ease with sharing time and space in the classroom with another teacher. She felt that she had personally gained a lot from the experience, learning more about herself as a teacher. She described an improvement in organization skills as a result of the cooperative planning experience, a better understanding of the many learning styles individual students brought to the class and improved communication skills with her students and the special education teacher. She strongly felt that she had made tremendous gains in clearly communicating her expectations for assignments and activities to the students.

The special education teacher felt it necessary to reiterate the benefits to her students of being in the mainstream classroom. The students were exposed to their peers in an increased capacity and raised their own self-expectations to fit in with those of the larger group. Additionally, they received the benefit of a content area teacher's expertise in the field of science. Being in the mainstream class allowed Jenny and Joe to participate in labs, activities and field trips that they would otherwise have missed out on. The teacher felt that she also benefited from these experiences. With the content area teacher's help, she now

felt much more confident about teaching science in the inclusion class and felt better equipped to teach the subject in a self-contained class setting. She was particularly impressed by the number of regular education students who came to view her as an acceptable resource and was pleased to extend help to all students, regardless of classification, during class time and study hall periods.

While both participating teachers were in favor of continuing the inclusion program in the following year, they felt that it was important to point out that the program was indeed successful for these two highly motivated students who had learning disabilities with no major emotional overrides. However, they also felt that the program should be offered to students on an individual basis as a part of the full spectrum of services established for special education students. They strongly agreed that the inclusion program would not be an appropriate placement for all students.

Summary

The study subjects, Jenny and Joe, were the first participants in an inclusion program for a small rural school district in Upstate New York. The students entered the program with no background experiences in the mainstream classroom for academic subjects. They also had very few opportunities to interact with peers outside of their classmates in the special education classroom. By their own accounts and those of their teachers, they made improvements in both academics and peer relationships.

The pre-planning for the program was an integral part of the program's success. Changes made by the administration in scheduling of teacher planning time resulted in a reserved time each day for the participating teachers to plan and discuss the daily and long-range activities for the class together. This

facilitated a feeling of joint responsibility for the program's success by both the regular and special education teachers.

Modifications made to accommodate the special education students in the mainstream class were made more in the way the materials were presented than to the materials themselves. With the special education teacher's guidance, the regular education teacher was able to modify activities and test materials for the benefit of all of the students in the class. Cooperative learning experiences and hands-on activities helped Jenny and Joe to function in the class and provided variety in the delivery of course content for all of the students.

Many of Jenny's and Joe's initial concerns about being picked on by classmates and treated differently in the classroom turned out to be unfounded. As the year progressed, Jenny and Joe felt more at ease with their classmates and with their own abilities to participate actively as members of the class. Both Jenny and Joe were glad for the opportunity to be in a "regular class doing the regular stuff" and would like to continue attending inclusion classes in the future.

The regular education students in the inclusion class also reported a positive experience through their responses to the administered survey of student attitudes. The survey results indicated that the students with experience in an inclusion setting feel more positively toward the student participants and the program than those without a comparable experience.

Both teacher participants in the experience felt that they made personal gains in their own abilities as teachers during the study year and that the inclusion program led to some benefits for all of the parties involved. They credit the success of the program to two highly motivated students, an accommodating administration and their own desire to see the inclusion class succeed.

CONCLUSION

Compulsory education laws of the early 1900s required the education of students with disabilities. The laws did not, however, stipulate a type of school setting for these children and this led to the establishment of special schools and institutions for children with disabilities.

Burton Blatt's (1971) research into the area of benefits of segregated education for students with special needs told us that separate education was not necessarily better education. Blatt's research did spark change. But change was brought about very slowly, especially in the realm of the public school system. The passage of the Education for All Handicapped Children Act in 1975 forced public schools to open their doors to all students and recognized that segregated education for students with disabilities was not affording these students the best educational opportunities. It has, nonetheless, taken many years for the public schools to begin to embrace a philosophy that allows for students with disabilities to participate in every aspect of the regular school community.

Schools now offer many different delivery models for educating students with disabilities, with the strongest focus on choosing the delivery model best suited to the needs of the individual student. This practice, of providing the student with an education in the least restrictive environment, has led to the full inclusion of special education students in the mainstream classroom.

Within the education field the term inclusion can conjure up many different ideas about what is taking place in the classroom, and who is being served. The National Education Association has helped to define and clarify much of the terminology used to describe the many models of delivery of special education services. The NEA defines inclusion as a setting in which special education students attend mainstream classes for the majority of the school day. These students are accompanied by a special education teacher who is responsible for

modifying course curricula and materials to meet the needs of the individual students being served by this delivery model. Inclusion often involves the development of a collaborative teaching relationship between the special and regular education teachers.

This study followed the movement of two students with learning disabilities from the typical self-contained special education classroom into a mainstream seventh grade life science class. The current academic literature on inclusion states that with proper training, resources and support, inclusion is a successful delivery model for special education services. The students and their teachers put these findings to the test: Does the inclusion setting really provide benefits to the special education student, the regular education student and their teachers?

This study looked at answering this question from each point of view. The subjects from the case study, Jenny and Joe, gave personal accounts of their gains, both academically and socially. Their own statements about growth they made in developing positive peer relationships were substantiated by comments made by past teachers in their cumulative records and by the observations of the participating teachers during the study year. The students developed and improved upon classroom skills such as note taking and reading from a textbook. Their self-confidence in utilizing these skills advanced through the academic year to the point that they became regular volunteers in such activities as reading aloud to the class. The special education teacher also noted a marked improvement in the number of assignments being completed and turned in on time. Much of this change was accredited to positive peer role modeling by the regular education students which could not have been observed in the self-contained setting. Jenny and Joe also made positive comments about being able to participate in all of the “regular” activities (labs, field trips) and feeling less “left

out". The special education students did indeed seem to benefit academically, socially and emotionally from the inclusion experience.

The regular education students in the inclusion class followed the same curriculum, at the same pace, as their peers in non-inclusion classes. The inclusion program did not detract from their academic progress. The survey administered to measure any improvement in attitude toward the special education students in inclusion classes showed a clear difference between those who had participated in the inclusion experience and those who had not. This improved positive attitude is an important indicator of acquired tolerances of differences among people and will certainly benefit the students who participated in the inclusion program.

The special education teacher and the mainstream science teacher reported experiencing growth as professional educators over the course of the study year. They learned from each other and their combined students and put all of their skills as educators into practice in forming a collaborative teaching relationship. In addition to the benefits they each gained personally from the inclusion experience, both were able to cite numerous advances made by all of the students during the study. They truly believed that their combined knowledge and skills created a better learning environment for everyone involved in the inclusion experience.

From every point of view examined, the special education student's, the regular education student's and the teachers', the inclusion setting as a delivery model for special education services does indeed seem to be a success. The study results are in full agreement with the findings from the academic literature; with training, planning, resource allotment and support, full inclusion of special education students and their teachers into the mainstream classroom has the potential to benefit the entire school community.

APPENDICES

Appendix A - Student Survey on Inclusion

This survey will be used as part of a graduate research project in education. The results will be kept confidential, no one will know your responses to the questions. Please answer every question as honestly as you possibly can. **DO NOT WRITE YOUR NAME ON THIS PAPER!**

Thank you, Mrs. Taverna

Circle the choice that best represents your feelings toward each question.

<u>Background:</u> Sex		M	F					
	Age	11	12	13	14	15		
	Class period	1	2	4	5	8		
	Social Studies teacher	Bancroft		Light		Sheffer		
<u>Survey:</u>				Never	Sometimes	Always		
1.	You take classes with handicapped students			1	2	3	4	5
2.	You take classes with learning disabled (LD) students			1	2	3	4	5
3.	There are students in your classes that can't read well			1	2	3	4	5
4.	There are students in your classes that can't read			1	2	3	4	5
5.	You are assigned to work on group projects with LD students			1	2	3	4	5
6.	You choose to work on group projects with LD students			1	2	3	4	5
7.	LD students in your classes get picked on by other students in the class			1	2	3	4	5

		Never	Sometimes	Always		
		1	2	3	4	5
8.	LD students are well liked in class	1	2	3	4	5
9.	LD students are behavior problems in class	1	2	3	4	5
10.	LD students create a distraction in class	1	2	3	4	5
11.	LD students have worse behavior than "regular" students	1	2	3	4	5
12.	LD students do less well in class than "regular" students	1	2	3	4	5
13.	LD students participate in class discussions	1	2	3	4	5
14.	"Regular" students participate in class discussions	1	2	3	4	5
15.	"Regular" students get picked on in class by other students	1	2	3	4	5

		Bad				Good
		1	2	3	4	5
16.	How do you feel about having special education students in class?	1	2	3	4	5
17.	How do you feel about having no special education students in class?	1	2	3	4	5
18.	How do you feel about having a special education teacher help you in class?	1	2	3	4	5
19.	How do you feel about helping special education students in class?	1	2	3	4	5
20.	How do you feel about your teacher repeating things for LD students in class?	1	2	3	4	5

Appendix B - Statistical Work Up

<u>Group A</u>	(no inclusion)	<u>Group B</u>	(inclusion)
38	60	44	64
38	60	47	64
46	60	50	64
48	60	51	64
49	60	53	64
49	61	54	65
50	61	55	66
51	61	55	66
51	61	58	66
51	62	58	67
51	63	58	67
52	64	58	68
52	64	60	69
54	67	60	69
54	70	61	70
55		61	70
55		61	71
56		61	72
56		61	72
57		62	73
58		62	73
58		62	75
59		63	75
59		63	79
59		64	

	<u>Group A</u>	<u>Group B</u>
n =	40	49
max. =	70	79
min. =	38	44
mean =	56.025	63.163
median =	57.5	64.0
sd =	± 6.844	± 7.378
skew =	-1.415	-0.353
95% t =	2.023	2.011

Appendix C - Statement of Hypothesis and t-Test

H_0 -- There is n.s.s.d. between Group A and Group B.

Calculation of t:

$$t = \frac{\bar{A} - \bar{B}}{\sqrt{\frac{(n_A - 1)(sd_A)^2 + (n_B - 1)(sd_B)^2}{[(n_A + n_B) - 2]} \cdot (1/n_A + 1/n_B)}}$$

$$t = \frac{56.025 - 63.163}{\sqrt{\frac{(40 - 1)(6.844)^2 + (49 - 1)(7.378)^2}{[(40 + 49) - 2]} \cdot (1/40 + 1/49)}}$$

$$t = -4.461$$

t-required for 87° freedom at 95% confidence level = ± 1.988

Since the required t is ± 1.988 and the t obtained is -4.461, we must reject the H_0 and conclude that there is s.s.d. between Group A and Group B.

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