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Using cooperative learning to meet the diverse needs of the mainstreamed classroom

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Abstract

Considerable debate among educators has centered on what kinds of academic structures can best accommodate mildly academically handicapped students, considering their particular needs in terms of self esteem, academic progress, and interpersonal relationships with nonhandicapped students. This paper examines the effects of mainstreaming compared to separate, special classes for academically handicapped students and address the question of what kinds of regular class structures can best provide for the needs of mainstreamed mildly academically handicapped students, while, at the same time, meeting the needs of normal and high ability students. In particular, this paper will examine how one structure, cooperative learning, can help to meet the diverse needs of students in the mainstreamed classroom.

USING COOPERATIVE LEARNING TO MEET THE DIVERSE
NEEDS OF THE MAINSTREAMED CLASSROOM

A Graduate Project

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by

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Using Cooperative Learning to Meet the Diverse Needs of the Mainstreamed Classroom

Considerable debate among educators has centered on what kinds of academic structures can best accommodate mildly academically handicapped students, considering their particular needs in terms of self esteem, academic progress, and interpersonal relationships with nonhandicapped students. This paper examines the effects of mainstreaming compared to separate, special classes for academically handicapped students and address the question of what kinds of regular class structures can best provide for the needs of mainstreamed mildly academically handicapped students, while, at the same time, meeting the needs of normal and high ability students. In particular, this paper will examine how one structure, cooperative learning, can help to meet the diverse needs of students in the mainstreamed classroom.

Madden and Slavin (1983b) prepared an exhaustive review of the literature examining the

effects mainstreaming students with mild academic handicaps had on the academic and social learnings of these students and their nonhandicapped peers. They drew several conclusions which can provide a starting point for the discussion on what kinds of academic structures can best meet the self esteem, interpersonal relationship, and academic needs of mildly academically handicapped students. In their review the authors found few consistent benefits of full time special education on any important outcomes. The research they reviewed favors placement in regular classes using individualized instruction or instruction supplemented by well-designed resource programs for the achievement, self esteem, and emotional adjustment of academically handicapped students. They found some evidence that in the absence of individualized programs or other supports in the regular classroom, lower IQ children (below 75) may have achieved better in a well structured special class program, and they found no evidence that higher IQ children (above 70) benefited from even the most carefully designed and intensive special classes. They also found some evidence

that these students benefited from regular class placement even with minimal support.

Madden and Slavin (1983b) separated their overall conclusion as to the lack of effectiveness of special class placement of mildly academically handicapped students into concerns for academic achievement, social-emotional outcomes, and social acceptance. For academic achievement they concluded that if individualized instruction is used in the regular classes in which mildly academically handicapped students are mainstreamed, the achievement of these students is markedly higher than those in special education classes using the same programs. This conclusion was based on only two studies which Madden and Slavin deemed, "particularly well designed." For social-emotional outcomes, the conclusion was that placement in regular classes with individualized instruction is superior to either full-time special education or regular class placement without special programs. For the concern of social acceptance of mildly academically handicapped students by nonhandicapped peers, Madden and Slavin found it unclear which type of

placement is associated with which social acceptance outcomes. In terms of self-derogation, self concept, and attitudes toward school, regular class placement with academic support was judged to be superior to full time special education class placement.

Conclusions such as these have led educators to shift away from segregating mildly academically handicapped students in full time special education programs toward mainstreaming them into regular classes. Passage of PL 94-142 responds to educators' changing attitude and the trend toward placing mildly academically handicapped students in regular classes whenever possible.

With the trend toward mainstreaming came a different set of concerns. Educators sought to determine how to best meet the academic, self esteem, and interpersonal relationship needs of mildly academically handicapped students along with the needs of normal progress and high ability students in the diverse setting of the heterogeneous classroom. Slavin, Madden, and Leavey (1984) concluded that for mainstreaming to be effective for mildly academically handicapped

students, the regular class program must be designed to meet diverse instructional needs.

Johnson, Johnson and Rynders (1981) posited that schools are moving rapidly to educate handicapped students with nonhandicapped peers in mainstreamed settings due to the impetus of such laws as PL 94-142. Many educators, however, fear that placing handicapped students into direct interaction with nonhandicapped peers will damage the self esteem of handicapped students. Johnson and Johnson (1983) state that simply placing students into the regular classroom does not seem to be enough to build positive relationships between handicapped and nonhandicapped peers. Classroom interventions are needed that require handicapped and nonhandicapped students to interact in constructive and positive ways. Skon, Johnson, and Johnson (1981) sought to discover the effect interaction with handicapped students had on the achievement of normal progress and high ability students.

A meta-analysis of the literature on mainstreaming by Johnson, Johnson, and Maruyama (1983) posed several conclusions as challenges for

the mainstreamed classroom to overcome. They concluded that the lack of theoretical models and apparently inconsistent research findings have left the impression that desegregation and mainstreaming may not be working and may not be constructive. Johnson, Johnson, and Maruyama in the review concluded that handicapped students are viewed by their nonhandicapped peers in negative and prejudiced ways, whether or not the handicapped children are in the same or separate classrooms. Many teachers and nonhandicapped children have low expectations for their performance, and they form these opinions before direct contact begins.

Johnson, Johnson, and Maruyama (1983) concluded further that physical proximity, as being in a mainstreamed classroom, may make things better or worse. Physical proximity may increase nonhandicapped students' prejudice toward and stereotyping and rejection of their handicapped peers. On the other hand, they cite evidence that placing handicapped and nonhandicapped students in the same classroom may result in more positive attitudes of nonhandicapped students toward their

interaction and relationships requires something more than simple proximity.

Unfortunately, to date, the majority of the mainstreaming efforts are devoid of attempts to modify the larger system to facilitate mainstreaming (Stainback, Stainback, Courtnage, & Jaben 1985). Furthermore, the authors suggest that in order to foster change in regular education, special educators need to reduce their current emphasis on classifying, labeling, and offering "special" programs for students who do not fit within the present regular education structure. Instead, they should put more emphasis on joining with regular educators to work for a reorganization or modification in the structure of regular education itself so that the needs of a wider range of students can be met within the mainstream of regular education.

Madden and Slavin (1983b) made similar observations. They suggest that mildly academically handicapped students should be placed in the least restrictive environment for as much time as possible in regular programs, but that the regular program should be adapted as much as

possible to accommodate the needs of handicapped students. Positive effects of mainstreaming appear to depend on the use of programs designed to meet the special instructional, emotional, and interpersonal needs of mildly academically handicapped students in the regular class. They state that mainstreaming itself does not resolve the problems of handicapped students in terms of academic needs, interpersonal relationships, and self esteem. Furthermore, they report that there is some evidence that mainstreaming may worsen these problems to some degree. The mainstream setting is the appropriate place in which to attempt to improve the social acceptance, self esteem, and instructional problems of handicapped students, but assignment to that setting itself is unlikely to solve the problems. Thus, the regular class is probably the setting in which the problems of mildly academically handicapped students should be addressed, but the problems in the regular class created by mainstreaming must be clearly identified and resolved.

If the regular class is the setting in which the needs of mildly academically handicapped

children should be addressed, then educators may wish to examine the structure of the regular class in order to identify and resolve the challenges created by mainstreaming. One prevalent and traditional way of structuring the regular heterogeneous classroom is the practice of grouping students according to their different abilities. This practice, known as ability grouping, has come under scrutiny in recent years.

Ability Grouping

Nevi (1987) defends structures that segregate students by ability. In an essay, he claims that homogeneous groups are easier to teach. Nevi's position is that even though educators seldom deal publicly with the fact, some students are more able learners than others. Some students, for whatever reasons, "are just plain smarter than others." The schools, he concludes, did not create these differences, but the schools must accommodate them, and one way is through grouping students according to their needs and abilities.

Dawson (1987), on the other hand, criticizes the practice of ability grouping in her review of

literature. She says her review indicates no research exists to show that ability grouped class assignment improves school achievement. Students' self concepts and attitudes toward themselves are not enhanced in ability grouped classes.

Instructional practices correlating highly with school achievement are far more likely to occur in high ability than low ability classes, and the classroom climate of high ability classes is more conducive to learning than low ability classes.

Furthermore, she found that the placement decisions concerning ability groups are made very early in a child's school career, these decisions may be based on questionable data, and they are enduring.

Madden and Slavin (1983b) also advise that ability grouping may not meet the needs of mainstreamed students. All too often, they say, "mainstreaming" involves putting academically handicapped students in regular classrooms where their learning problems cause them to be resegregated. They describe special education as a special case of tracking and suggest that

regular class placement with appropriate supports is better for the achievement of these students.

Hallinan and Sorenson (1985) offer another consideration to educators who are concerned with positive interpersonal relationships between handicapped and nonhandicapped pupils. In a study examining ability grouping and student friendships, they found that membership in the same ability group increases the likelihood that students will become best friends. The authors caution that assignment of students to ability groups can foster a stratified friendship network.

Cooperative Learning: An Overview

For educators who are concerned with the possible negative effects ability grouping may have on the self esteem of mildly academically handicapped students, their achievement, and their interpersonal relationships with nonhandicapped students, there exists a well researched alternative -- cooperative learning.

Schniedewind and Salend (1987) describe cooperative learning as a teaching strategy which can simultaneously promote academics and

behavioral skills. They say that under this strategy students work together to achieve a shared academic goal. Students are accountable for their own achievement as well as the performance for the others in their cooperative group. Cooperative learning, they say, is especially appropriate for heterogeneous groups.

Ascher (1987) describes cooperative learning as the only well researched approach to creating contacts in which both black and white students move beyond stereotypes to see and treat each other as equals within the classroom. She describes increases in self esteem, confidence, and self acceptance, partly as a result of being more successful in schoolwork and partly because of feeling liked by others. The increase in self esteem may be associated with a decrease in prejudice and a greater acceptance of others.

One magazine for working mothers suggests parents should look for schools that deemphasize individual competition and be guided instead by the principles of cooperative learning and peer tutoring (Morrow, 1990). An elementary principal quoted in the article describes how students,

"were talking with kids they normally wouldn't associate with, because now they had a reason to [sic]." (p. 70). Morrow suggests that when students tutor each other, both students benefit, regardless of their ability level, and that they're learning to cooperate -- a vital skill in the adult world.

Johnson, Johnson, and Holubec (1986) denote three structures under which students can interact: competitively, individualistically, and cooperatively. They present the cooperative learning structure as positive interdependence among students' goal attainments. Students perceive that they can reach their own learning goals if and only if the other students in their learning group also reach their goals. In this way students seek outcomes that are beneficial to all those in their cooperative group. Students discuss the material with each other, help one another understand it, and encourage each other to work hard. The authors suggest that what we know about cooperative learning should be used when we want students to learn more, like school better,

like each other better, and learn more effective social skills.

Johnson and Johnson (1989) suggest that the long term skills which can be derived from cooperative learning include greater employability, and career success. Most jobs require getting others to cooperate, and helping people to work together. They also say that social skills are related to positive relationships in maintaining a set of good friends, being a caring parent, or being a good spouse.

Male (1986) suggests that cooperative learning produces positive results with all students, including mainstreamed students, because of the "magic" of students teaching each other, the support and interaction with teammates, the opportunity to be successful, and the amount of engaged time with the task at hand. She describes an atmosphere of understanding and acceptance of difference and disability.

It seems, then, that several authors (Acsher, 1987; Johnson, Johnson, & Holubec, 1986; Male, 1986; Morrow, 1990; Schniedewind & Salend, 1987)

have high expectations for cooperative learning. Indeed, several studies can provide empirical evidence of the benefits of cooperative learning toward self esteem, interpersonal relationships, and achievement. The following sections examines some of these studies.

Self Esteem

Moskowitz, Malvin, and Schaeffer (1983) produced a study of the cooperative learning strategy, Jigsaw. The cooperative learning treatment lasted 24 weeks and averaged two hours per week of use. Students in this study perceived their classes as less competitive, and more cooperative. However, their study produced few predicted results. Students in the cooperative learning treatment demonstrated lower self esteem than students in the control classes.

Davis (1985) examined the self esteem of cooperatively grouped students in the San Diego City Schools. This study lasted eight weeks and included 12 classes of elementary students. Teachers used the cooperative learning strategies for 15 to 20 minutes per day. The study yielded

no significant differences in self esteem between control and treatment groups.

Some studies have shown increases in self esteem, however. Johnson, Johnson, and Rynders (1981) set up a bowling class under competitive, cooperative, and individualistic conditions. The study involved academically handicapped and nonhandicapped students, some working cooperatively to help each other bowl better, some competing against the other students in their condition, and some bowling individualistically. neither competing, nor cooperating. Academically handicapped students in the cooperative condition showed higher self esteem and also perceived their teachers as being more accepting of them personally.

Madden and Slavin's (1983a) study discovered a positive effect on self esteem in a cooperative learning group of classes. This study compared cooperatively structured classrooms with mainstreamed academically handicapped students in them to traditionally structured classrooms also with mainstreamed academically handicapped students in them. The increase in self esteem was

more positive for the full sample of cooperatively grouped handicapped students.

Johnson and Johnson (1983) found higher school esteem and higher general self esteem in the mainstreamed cooperative learning classrooms in their study. They sought to discover if the way instructional goals are structured would influence the nature of student interaction and whether different student interaction patterns would lead to different outcomes for mainstreaming. Students in each condition were together for 60 minutes a day for 15 instructional days. In their study the cooperative learning class perceived their classes to be more cooperative and less individualistic. The students in the cooperatively structured classrooms showed higher general self esteem and higher school self esteem. The handicapped students, however, had a lower general and school self esteem than the nonhandicapped students.

Another study of the effect of cooperative learning on self esteem by Yager, Johnson, Johnson, and Snider (1985) found increases in academic self esteem especially for handicapped

students. This study lasted for 12 weeks.

Students in the cooperative group worked together for 45 minutes each day.

Why would some studies show no gains in self esteem, or even negative results, while others show positive results? It may be that the amount of time per day devoted to cooperative learning structures, the number of days of use, or the quality of the implementation makes a difference. In the studies showing poor results, less time per day was devoted to cooperative learning, in Moskowitz, et al. (1983) two hours per week, and in Davis (1985), only 15 minutes per day. Furthermore, Davis describes less than enthusiastic implementation by participating teachers and much off task behavior was observed among the students. Moskowitz et al. also questions whether less than adequate implementation of the Jigsaw method may account for their less than expected results.

In contrast, the Yager et al. (1985), Johnson and Johnson (1987), and Madden and Slavin (1983a) studies each devoted 45 minutes or more per day to the cooperative learning methods. These were

studies which showed more positive effects of cooperative learning on self esteem.

Smith, Johnson, and Johnson (1982) were able to show an increase in self esteem for handicapped, regular, and gifted students working together in cooperative learning groups for only five days for 65 minutes each day. In this study teachers had 30 hours of training and practiced the procedures for five instructional sessions. Duration of implementation may not be the only element necessary to achieve positive results for self esteem. It may be that extensive teacher training also plays a factor in successful delivery of cooperative learning.

Cooperative learning, then may have the potential to meet some of the challenges concerned with mainstreaming mildly academically handicapped into the regular program class, namely those challenges dealing with the self esteem of the mainstreamed students. Questions remain, however, concerning how many minutes per day are needed and how many days of implementation are required in order to achieve beneficial effects. Furthermore, some questions are left unanswered regarding what

constitutes quality delivery of the cooperative structures.

Interpersonal Relationships

Johnson, Johnson, and Maruyama (1983) propose that a key factor identified by previous research could determine whether mainstreaming promotes positive or negative relationships among heterogeneous students. This factor is whether the students cooperate, compete, or work individualistically. They formed a theoretical model which proposes that the type of goal interdependence used to structure classroom learning determines whether interpersonal attraction or increased interpersonal rejection results among heterogeneous students. They sought to determine the validity of this model by conducting a meta-analysis of the research comparing relative impact of cooperative, competitive, and individualistic situations on interpersonal attraction between individuals from different ethnic groups, and between handicapped and nonhandicapped individuals.

The authors (Johnson, Johnson, and Maruyama, 1983) compared four goal structures: competitive, individualistic, cooperative with intergroup competition, and strictly cooperative. The meta-analysis showed that cooperative experiences promote more positive relationships between handicapped and nonhandicapped individuals than do cooperative with intergroup competition, interpersonal competition, and individualistic experiences. Cooperative with intergroup competition tends to promote more positive relationships across handicap lines than do interpersonal competitive or individualistic experiences. They found little difference between interpersonal competition and individualistic efforts on interpersonal attraction.

Separate conclusions from the meta-analysis found that cooperative experiences compared with competitive and individualistic experiences result in more promotive and less oppositional interaction, greater perceived encouragement and acceptance, more accurate perspective taking, higher self esteem based on unconditional self acceptance, greater academic success, and greater

expectations for rewarding future interaction (Johnson, Johnson, & Maruyama, 1983). The more cooperative experiences tended to promote the occurrence of these variables, the greater was the resulting interpersonal attraction among students regardless of their heterogeneity.

Johnson, Johnson, and Maruyama (1983) suggest that one reason cooperative experiences may promote more interpersonal attraction among heterogeneous individuals than do competitive or individualistic experiences is that within cooperative structures participants benefit from facilitating each other's efforts to achieve, while in competitive situations participants benefit from obstructing each other's efforts to achieve, and in individualistic conditions the success of others is irrelevant. There are ways, then, of structuring interaction between majority and minority students so that constructive and supportive peer relationships result. When heterogeneous students interact within a context characterized by positive goal interdependence, a process of acceptance is promoted, resulting in promoting interaction. When the context for

interaction is characterized by negative or no goal interdependence, a process of rejection is promoted, resulting in oppositional or no interaction, convictions of peer rejection, inaccurate understanding of other's perspectives, feelings of failure, self rejection, dislike for classmates with handicapping conditions and expectations of distasteful and unpleasant future interaction with heterogeneous peers. The authors conclude that cooperative learning should be utilized in mainstreamed classes.

A concern of educators may be that if handicapped and nonhandicapped students have not formed friendships and positive interpersonal relationships, they may not work as well together in cooperative groups as students who have already formed friendships. The research of Berndt, Perry, and Miller (1988) may address this concern. In their study, they observed sixty third graders who said they were friends with each other and other classmates who did not indicate they were friends with each other. When these groups of students were observed in cooperative tasks the researchers found no differences in the academic

interactions between the groups of friends and nonfriends. The authors note that the study did not measure whether groups of friends learn more than groups of other classmates, but propose that differences seem unlikely insofar as there were no differences in their interaction patterns.

Berndt et al. (1988) saw no disadvantage to pairing students with their friends for academic tasks in that they did not distract each other from the task at hand, but at the same time, cautioned educators to consider the students who had no friends in the class. It may be that their findings could be viewed as supportive of grouping students with nonfriends, since cooperative learning situations seemed to enable students to make friends with classmates they previously did not nominate as friends.

The above study was conducted in a regular classroom setting. In a mainstreamed classroom, it may be that nonhandicapped students may reject handicapped students as friends or workmates. Madden and Slavin (1983a) found that cooperative structures can have a positive effect for handicapped students in that normal progress

students rejected handicapped students as workmates significantly less after the cooperative treatment. In this study students could nominate peers with whom they wanted to work as well as nominate peers with whom they would not like to work. The improvement in social acceptance was only in a reduction in negative choices. The handicapped students were not chosen more frequently as friends or workmates.

Johnson and Johnson (1983) produced a research instrument to determine if the positive interpersonal relationships between handicapped and nonhandicapped students that are possible with cooperative structures also occur in free time situations in the classroom. Rather than examining pencil and paper nominations or rejections of classmates as friends or workmates (Yager et al. 1985; Madden & Slavin, 1983a; Johnson, Johnson, Warring, & Maruyama, 1986) Johnson and Johnson recorded distance-density scores for students as they engaged in free-time classroom activities. That is, they recorded the number of students who chose to work or play in the area nearby a target student during free-time.

The researchers also recorded the type and frequency of verbal comments between handicapped and nonhandicapped classmates. Handicapped students in the cooperative condition received more positive comments from nonhandicapped peers than did handicapped students in competitive and individualistic conditions, when they were excused to free-time classroom situations. Handicapped and nonhandicapped students from the cooperative condition chose to work or play closer to each other during classroom free-time than the students from the other conditions chose to work by their condition mates.

Johnson, Johnson, Warring, and Maruyamna (1986) sought to examine what effects cooperative learning might have on interpersonal relationships during unstructured classroom settings, out-of-class school settings, and home situations. Also, they sought to examine what kinds of cooperative structures (pure cooperative structures or a mixture of cooperative and competitive structures) would promote positive interpersonal relationships between handicapped and nonhandicapped students. They found that

students in the cooperative conditions made more positive cross handicap selections for unstructured class activities and out-of-class school activities. There were fewer cross handicap selections in home situations than for unstructured class activities. Nonhandicapped students in the pure cooperative condition indicated more constructive interaction with handicapped peers than did nonhandicapped students in the mixed and competitive conditions. Both the cooperative and the cooperative/competitive mixed structures promoted more constructive cross handicapped interaction than the individualistic condition. The authors offer the conclusion that the greater the cooperation, the greater may be the interpersonal attraction between handicapped and nonhandicapped students.

Johnson, Johnson, and Anderson (1983) examined surveys from 859 students and made some observations regarding interpersonal relationships. The more students liked to work cooperatively and the more they perceived positive goal interdependence, the more they believed that teachers cared about how much students learn and

wished to facilitate the learning of students and that teachers cared about and liked students as persons. Liking for cooperation and perceptions of positive goal interdependence existing among the members of the class were positively related to perceptions that fellow students cared about how much they learn and wished to facilitate their learning. Liking for cooperation was positively related to perceptions that other students cared about them and liked them as persons and that students in their class were friends and liked each other. Students who perceived themselves as frequently participating in cooperative learning experiences, compared with those who did not, experienced more academic help and encouragement and more caring and affection from peers. The authors concluded that cooperative attitudes and experiences were related to feeling supported and accepted by teachers and peers, both academically and personally.

Madden and Slavin (1983b) made a conclusion regarding interpersonal relationships between handicapped and nonhandicapped students from their review of literature. They suggest that short

term cooperative interventions produced sociometric gains that were not maintained after the intervention because the children returned to the usual competitive structure of the classroom. The short term cooperative interventions have operated on the assumption that once the students' status is improved, social forces will maintain the improvement. A cooperative intervention that changes the competitive structure and that can be embedded in the ongoing classroom system may be required to bring about lasting improvement in the social status of mainstreamed mildly academically handicapped students.

Madden and Slavin's (1983b) observation may be reinforced by more recent research (Yager et al. 1985). They studied whether cross handicap relationships develop in a linear or nonlinear way, that is, whether the positive effects produced by a cooperative intervention would maintain once the intervention was removed and replaced with an individualistic structure. This study lasted 54 days for 45 minutes per day. Negative responses toward handicapped students by nonhandicapped students to such questions as,

"With whom are you not friends?," or "With whom would you not like to sit at lunch?" were recorded. The percentage of negative responses toward handicapped students in the individualistic condition remained high throughout the treatment (near 95%). Negative responses in the cooperative condition declined from 77% to 46%, but when the cooperative condition was replaced by an individualistic structure, negative responses rose to pretreatment levels. Negative responses in the condition which remained cooperative continued to decline throughout the duration of the treatment.

Cooperative learning seems to have the potential to improve interpersonal relationships between handicapped and nonhandicapped students in the mainstreamed classroom. Educators who wish to improve interpersonal relationships between handicapped and nonhandicapped students may wish to consider how to maintain positive interactions over time, what type of cooperative structures best promote positive interactions, and how these positive interactions can be generalized into free-time school and home situations.

Achievement

Along with the possible beneficial effects of cooperative learning to the self esteem of mainstreamed academically handicapped students and the interpersonal relationships between handicapped and nonhandicapped students, cooperative learning may be judged on the basis of its effect on the achievement of mainstreamed students. Moreover, cooperative learning may not be judged solely on the basis of beneficial effects for only the handicapped students. Educators will also be concerned with the effect any intervention in the mainstreamed classroom will have on normal progress and gifted students. Will cooperative learning interventions be considered worthwhile if they benefit handicapped students, but have deleterious effects on the rest of the class?

Robert E. Slavin is quoted in the parents' magazine, Working Mother as saying he hears that objection all the time. "Parents seem to feel that their child is the smart one and they always worry that their little genius won't learn as

much. In fact, with cooperative learning, she'll learn more." (Morrow, 1990, p. 71). An elementary school principal of a cooperative school said he hasn't had any complaints, not even the expected, "working together will hold back my kid." (p. 71).

Madden and Slavin (1983b) also address instructional problems in the mainstream classroom. They suggest that teachers must prepare instruction that will be appropriate to all members of the class. Mainstreamed students with academic handicaps may likely be seen as an additional burden placed on teachers. The research on cooperative learning, they say, shows that it can overcome barriers to positive relationships between handicapped and nonhandicapped students, and, at the same time, enhance achievement for all students in the class. Schools may meet the academic and social needs of their academically handicapped students while enhancing the academic achievement of their nonhandicapped students.

Willard (1989) in an essay discusses how life in a heterogenously grouped elementary classroom

In the United States should provide for the intellectual and artistic needs of all students, and, at the same time, create a climate in which each student will flourish as an individual. In a heterogeneously mixed classroom, in which the range of cognition often spans the logical reasoning hierarchy, cooperative problem solving is a method of teaching and learning that encourages a diversity of strengths as well as provides a common meeting ground for children of many abilities in a shared activity that is perceived as intrinsically worthwhile to each. In-depth problem solving is uniquely suited to the needs of gifted students in the regular classroom because of the reciprocity of sharing, which encourages students of every ability to contribute their personal best to the common enterprise. The cooperative problem approach unites all students in a cooperative learning venture in which they share a common interest as well as a sense of mutual pride and respect.

Madden and Slavin (1983a) evaluated an instructional method involving the use of heterogeneous learning teams as a regular part of

the daily academic instruction. The instructional method is called Student Team Learning and was designed to improve the relationships between mainstreamed and normal progress students and to improve the academic achievement of all students. In a cooperative learning treatment students practiced in heterogeneous teams including mildly academically handicapped students. Individual performance on tests contributed to team scores. Teams were rewarded for their performance compared to other teams in the class. The academic scores of normal progress students in the cooperative condition were better than the control (individualistic) condition. Their scores did not go down as a result of cooperating with the mildly academically handicapped students. The authors concluded that the academic needs of mildly academically handicapped students and normal progress students can be met simultaneously.

Slavin, Madden, and Leavey (1984) described their study of another cooperative learning structure. They contrast this structure with individualized instruction in that individualized instruction is ineffective because, while it is

successful at increasing appropriate levels of instruction, it reduces direct instruction from teachers and incentives are reduced by the repetitiveness of the tasks and lack of interaction with and feedback from the teacher or others, and time is diminished by the low time on task characteristic of seatwork. Slavin, Madden, and Leavey propose an individualized program that would be effective in increasing achievement. Team Assisted Individualization is comprised of heterogeneous groups with individualized materials at students' own levels and rates. Students help each other with problems within their own teams. Teams do almost all the checking and management tasks. There is more direct instruction than other individualized programs in that the teacher works with groups at the same level, a few from each team. Teams are rewarded based on average number of units completed. In their study, the authors found a treatment effect for mathematics computations, but not mathematics concepts, nor applications. Both mildly academically handicapped students and nonhandicapped students increased in achievement.

Slavin, Stevens, and Madden (1988) describe a third means of accommodating student diversity. This structure is one for reading and writing instruction and uses homogeneous teaching groups and heterogenous work groups within the same classroom to create instructional methods capable of being used in heterogeneous classes as an alternative to ability grouping of classes, remedial pull-outs, and special education. The philosophy has been that individual differences of all kinds are best dealt with within the heterogeneous classroom, but to accomplish this, classroom organization must be capable of providing for individual needs, whatever they may be. This structure is called Cooperative Integrated Reading and Composition (CIRC) and is similar to Team Assisted Instruction in math in that it also has mixed ability cooperative learning teams and same ability teaching groups. CIRC has these features: basal reading activities, partner checking, tests, direct instruction in reading comprehension, integrated language arts and writing, independent reading, and involvement of special education resource

teachers and remedial reading teachers. In the study, CIRC classes gained significantly more in reading comprehension and vocabulary, language expression, and spelling. The CIRC program produced equal gains for students initially high, average, and low in reading skills, leading the authors to conclude that CIRC is effective for both handicapped and nonhandicapped pupils.

Yager et al. (1985) found more than achievement benefits for normal progress and handicapped students. In their cooperative learning condition all students perceived more teacher personal support, more academic peer support, and greater personal peer support. Both types of students in the cooperative condition perceived greater liking among students, and viewed the grading system as fair. Students in the individualistic condition viewed the grading system as less fair.

Smith, Johnson, and Johnson (1982) examined whether the presence of handicapped students in the regular classroom affected the achievement of regular and gifted students. They proposed that whatever positive or negative effect mainstreaming

has on the achievement of handicapped and nonhandicapped students should be most apparent when students work in heterogeneous groups. The interaction between handicapped and nonhandicapped may be minimized when learning is structured individualistically. This should reduce any impact the presence of handicapped students has on the regular and gifted students. The researchers set up a cooperative group and an individualistic group, each worked together for five days for 65 minutes each day. Handicapped, regular, and gifted students in the cooperative condition achieved higher on an achievement test and on a retention test than did their counterparts in the individualistic condition. Handicapped students in the cooperative condition achieved at about the same level as their normal progress classmates.

Skon, et al. (1981) studied whether it is only cooperative interaction with peers of superior ability that promotes higher achievement, or whether cooperative interaction with peers of equal or lower ability promoted higher achievement than would competitive or individualistic efforts. They found that the discussion within the

cooperative learning groups promotes discovery of higher quality reasoning strategies. Cooperative peer interaction promoted higher achievement than competitive and individualistic efforts. The authors also wanted to discover whether high ability students in cooperative conditions might fail to benefit from discussion with less able students or whether only medium and low ability students would benefit from discussion with more able students. The finding was that it made no difference whether students were interacting with peers of similar or different abilities. High ability children benefitted as much from interacting with medium and low ability children as they did from interacting with other high ability peers. The results of this study seem to indicate that it is the discussion with one's peers that promotes the higher cognitive reasoning and not the ability level of the members of one's cooperative group.

Implications for Practitioners

Unfortunately, to date, according to Stainback, Stainback, Courtage, and Jabon, (1985) the majority of the mainstreaming efforts are devoid of attempts to modify the larger system to facilitate mainstreaming. In order to foster change in regular education, special educators need to reduce their current emphasis on classifying, labeling, and offering "special" programs for students who do not fit within the present regular education structure. Instead, they should put more emphasis on joining with regular educators to work for a reorganization of or modifications in the structure of regular education itself so that the needs of a wider range of students can be met within the mainstream of regular education.

The purpose of a study by Slavin and Karwelt (1985) was to investigate the mathematics achievement effects of three commonly proposed methods of dealing with student heterogeneity: individualized instruction, within-class ability grouping, and whole class instruction. The whole

class instruction was group paced and consisted of a regular sequence of teaching, controlled practiced, independent seatwork, and homework. The ability grouped instruction used the same features of the individualized instruction, but it was delivered to a high and low group at a different pace within the same class. The individualized model was called Team Assisted Instruction (TAI). Students in TAI worked in heterogeneous four or five member cooperative learning teams on individualized mathematics materials at their own levels and rates.

Slavin and Karweit (1985) found that both the ability grouped instruction and TAI increased computational skills more than the whole class instruction. The researchers discuss these results as providing evidence that methods that include means of adapting instruction to diverse needs can be more effective than methods that do not. However, they say, these results should not be interpreted as justification of individualized instruction or within-class ability grouping in general. The results mean that if problems of management and motivation inherent in attempts to

accommodate student heterogeneity can be solved, then such methods may be able to enhance achievement for all students (Slavin & Karweit, 1985).

Cooperative learning may have the potential to alleviate some of the problems concerned with the prevalent practice of mainstreaming. It had been shown in some cases to improve the self esteem of mainstreamed handicapped students. It may be able to improve the poor interpersonal relationships between handicapped and nonhandicapped students in the mainstreamed classroom. Additionally, some researchers have been able to improve the achievement of handicapped students in a heterogeneous classroom, while not impeding or, in some cases, improving the achievement of normal progress and high ability students.

Nevertheless, some research studies have failed to show significant effects of cooperative learning interventions. Practitioners must examine aspects of studies such as Davis (1985) and Moskowitz et al. (1983) which produced disappointing results. Practitioners may wish to

consider the duration of treatment necessary to garner positive results as well as what kinds of implementation constitutes quality delivery of the cooperative strategies.

Davis (1985) describes the implementation of cooperative learning at the high school level in his study as "virtually non-existent." Some teachers felt the program was an imposition. The author's conclusion was that more inservice to teachers and follow-up was needed in his school system. He still supports the cooperative learning program in his school and the program's contribution to his district's integration and race/human relations program.

Moskowitz et al. (1983) suggest their study may simulate more closely the impact of Jigsaw under naturalistic conditions. When teacher inservice is imposed by school officials, the teachers may participate without commitment. Some teachers may modify Jigsaw by eliminating what may be critical components, and perhaps undermine its effectiveness. They call for future research to determine how to achieve teacher implementation while preserving the integrity of Jigsaw.

Slavin (1988) describes the high expectations that many educators have for cooperative learning methods and cautions that not all forms of cooperative learning have been demonstrated to be effective. He proposes that two conditions are essential to effective implementation of cooperative learning. These are group goals and individual accountability.

Johnson and Johnson (1990) also describe the elements of cooperative learning that are necessary to produce the positive social outcomes. They describe these conditions as: positive interdependence, face-to-face interaction, individual accountability, social skills, and group processing. Johnson and Johnson say the interpersonal skills must be taught in order for cooperative groups to be effective.

Slavin (1989) cautions educators that large numbers of teachers with half knowledge may use ineffective forms of the approach and, therefore, experience failure and frustration. An inherent danger in the success of cooperative learning is that the methods will be oversold and undertrained. It is being promoted as an

alternative to tracking and within-class grouping, as a means of improving race relations in desegregated schools, as a solution to the problems of students at risk, as a means of increasing prosocial behavior among children, as well as a method for simply increasing the achievement of all students. Cooperative learning may in fact be able to accomplish many of these objectives, but real and lasting success with the approach requires follow-up, over time, from peer coaches or expert coaches, unambiguous administrative support, and the availability of materials designed for cooperative learning or time to adapt existing materials to this purpose.

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