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ABSTRACT

The experience of students with learning disabilities during cooperative learning reading lessons with peers without disabilities was studied over the course of 2 years. In the first year of research observations were conducted in one elementary school. Twelve children with mild disabilities and 12 students who were average in performance were observed in the same grade 3-6 general education classrooms. In the second year, another 10 mildly disabled students from two other schools in the same district were observed. Students with disabilities received more help and offered fewer contributions than students without disabilities. Forty percent of the students with disabilities were classified as successfully participating in cooperative groups. Successful cooperative learning experiences for students with disabilities were related to individual differences in reading performance and social competence and to classroom practices, such as selection of partners, teacher monitoring, and the establishment of a cooperative ethic. The teachers of children who operated most successfully in groups reinforced participation and contribution to group efforts, and validated the comments of low-skilled children in groups. Results suggest that it is difficult to balance the need of students with disabilities for direct teaching, the group's need to accomplish its work, and the class's need to learn cooperation and tolerance. (Contains 32 references.) (SW)

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COOPERATIVE LEARNING FOR STUDENTS WITH LEARNING DISABILITIES:
TEACHER AND CHILD CONTRIBUTIONS TO SUCCESSFUL PARTICIPATION

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ABSTRACT

This research examined the experience of students with disabilities as they engaged in cooperative learning reading lessons with their non-disabled peers. In the first year of the research, we observed 12 children with mild disabilities and 12 average-performing children (grades 3-6) in the same general education classrooms. In the second year, we conducted observations of another 10 students with mild disabilities in other schools. We assessed the quality of participation of students with disabilities by noting the types of activities, the amount and kind of help they received (and from whom), and the amount and kind of contributions they made to group efforts. Students with disabilities received more help and offered fewer contributions than non-disabled students, and we classified only 40% of these students as successfully participating in cooperative groups. Analyses disclosed that individual differences among special education students (reading performance and social competence) and classroom practices (e.g., selection of partners, teacher monitoring, the establishment of a cooperative ethic) were related to successful cooperative learning experiences for students with disabilities. Our results suggest that it is a difficult act to balance the need of students with disabilities for direct teaching, the group's need to accomplish its work, and the class's need to learn cooperation and tolerance.

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Most educators believe that learning how to work cooperatively and function as a responsible member of a team is an important educational outcome in its own right (Johnson, Johnson, & Maruyama, 1983; Slavin, 1993). This consensus about the inherent value of teamwork, combined with the development of practical classroom procedures for structuring group learning activities, probably accounts for the exponential increase in classroom teachers' use of cooperative learning procedures. As reports of beneficial outcomes mount, researchers and practitioners have begun to test cooperative learning approaches with more diverse student subgroups such as gifted, language minority, and students with disabilities. Our research examined the cooperative learning experiences of special education students in general education classrooms, and addressed the question: Is cooperative learning as effective an accommodation for students with disabilities as it is widely perceived to be?

In the current special education Zeitgeist, the principle of "inclusion" (i.e., the belief that special education students are most appropriately educated alongside their same-age peers and that separate education of any kind is inherently unequal) has gained increasing acceptance, drawing support from special education, the National Association of State Boards of Education (1992), advocates of school restructuring (Reynolds, Wang, & Walberg, 1987), and the U. S. Department of Education (Will, 1986). Cooperative learning is one of the most frequently recommended strategies for effecting "inclusion" of students with disabilities in regular classroom programs (Alberg, 1991; Johnson & Johnson, 1980; Mainzer, Mainzer, Slavin, & Lowry, 1993; Slavin, 1990; Slavin & Stevens, 1991; Slavin, Stevens & Madden, 1988; Thousand & Villa, 1991; Will, 1986). Although the rationale for using cooperative learning to enhance instruction for students with disabilities is persuasive, research on the efficacy of this strategy has produced mixed findings. For instance, after reviewing achievement outcomes of cooperative learning treatments, Tateyama-Sniezek (1990) concluded that this approach was only sometimes effective in improving the achievement of students with disabilities.

The present research was designed to take a closer look at what occurs in cooperative learning groups that include students with mild disabilities. We were particularly interested in examining the quality of special education students' participation in group work and the nature of the help provided by the peer group. We also hoped to identify structural factors (e.g., learning tasks and classroom conventions) and individual differences that contributed to more and less successful cooperative learning experiences for these children. Our strategy was to combine teacher interviews with observations of special and regular education students' behavior in cooperative learning groups which used the same nominal model and materials, Cooperative Integrated Reading and Composition, or CIRC (Stevens et al., 1987).

Method

Overview

Over the course of 2 years we conducted two sets observations of the cooperative learning experiences of children with mild disabilities. The Year 1 observations were conducted in one elementary school in which all teachers (except kindergarten and first grade) had adopted the CIRC model. The Year 2 observations were conducted in two other elementary schools in the same district in which several teachers had also implemented CIRC. The Year 1 study was more extensive, including an analysis of children's achievement and social competence as well as concurrent observations of non disabled peers in the same classrooms. The Year 2 observations focused on further exploration of classroom practices related to special education children's success in cooperative learning.

The Classrooms

All classrooms in this research followed the Stevens et al. (1987) CIRC. The teachers formed cooperative learning groups comprising four-person teams, except where class numbers required some groups of two or three. Team members were heterogeneous in achievement, gender, and ethnicity. In keeping with the Stevens et al. (1987) recommendations, classroom activities followed a pattern of teacher instruction, team practice, individual assessments, and team recognition.

Children Observed in the First Year

The Year 1 observations focused on 12 students with disabilities who were distributed across eight classrooms representing grades 3 through 6. All but one of these children qualified for special education services under the category of learning disabilities; the exception was a student who was eligible under the category of behavior disorders. In addition, we observed 12 typically achieving classmates; for each special education student, we selected a same-sex peer who scored closest to the class average on a standardized reading test administered in September. Two pairs of children were subsequently dropped from the observation portion of this research because, although their classrooms were structured for cooperative learning, the special education students received individual tutoring from adults and were never observed to participate in any cooperative learning activities.

Reading Measures. At the school in which we conducted our first year observations, the reading comprehension subtest of the Gates-MacGinitie Reading Test had been administered by classroom teachers in the autumn to all students. We derived normal curve equivalent (NCE) scores. Gates scores for the students with disabilities ranged from 1 to 50 ($M = 22.92$, $SD = 15.71$) and those of their matched peers ranged from 42 to 63 ($M = 52.0$, $SD = 5.86$). The groups differed significantly, $t(22) = 6.01$, $p < .001$. We also administered a passage-reading fluency

measure (mean readability of the passages was grade 1.7) to all students with disabilities. Students read each of three passage to an examiner for 1 minute. Reading fluency level was designated as the median words correct per minute (cpm) from the passages. Students' fluency scores ranged from 8 to 123 ($M = 54.58$, $SD = 46.53$).

Social Competence. Classroom teachers had rated the social competence of their students with disabilities in the autumn, using the Walker-McConnell Scale of Social Competence and School Adjustment, SSCSA (Walker & McConnell, 1988). The SSCSA requires frequency ratings of 43 behaviors on a 5-point scale that ranges from *never* to *frequently*. Items measure peer-related skills that classroom teachers value (e.g., student shows sympathy for others; accepts constructive criticism from peers without becoming angry; is sensitive to the needs of others; cooperates with peers in group activities or situations; etc.), peer-related social behaviors that are particularly valued by peers in play situations (e.g., student plays or talks with peers for extended periods of time; interacts with a number of different peers; plays games and activities at recess skillfully; etc.), and school-related adaptive behavior that teachers value (e.g., student displays independent study skills; uses free time appropriately; attends to assigned tasks; listens carefully to teacher directions and instructions for assignments, etc.). Standard scores ($M = 100$; $SD = 15$) for the students with disabilities ranged from 67 to 112 ($M = 86.92$, $SD = 14.14$).

Children Observed in the Second Year

The Year 2 observations, conducted in two other schools, focused on 10 children, all of whom qualified for special education services under the category of learning disabilities, who were distributed across five classrooms, grades 3 to 6. We did not have access to reading and social competence scores for these students.

Observations

The Year 1 observations occurred between February and May. Two observers worked in each classroom simultaneously, one targeting a child with disabilities, and one an average-achieving peer. The two students making up the matched pairs were always from different cooperative groups in the same classroom. During successive observations, observers traded target children so that each child was observed by each observer. In all, each student was observed in cooperative learning groups for between 2 and 6 hours of classroom reading instruction.

During the observations, we took notes on peer interactions and adult-child interactions (transcribing conversations where possible), the amount of time students spent on specific activities, the number of occurrences and types of help received and contributions offered by the target child, and classroom structures and organization related to cooperative learning. We also noted any support for students with disabilities that was external to the cooperative group activities.

These supports included audio-taped recordings of stories for children with low reading skills who might not have been able to read the selection in the allotted time; and special education teachers, assistants, or adult volunteers who primed children for cooperative group work by practicing key vocabulary or prereading of the story.

Immediately following each observation, observers developed write-ups (Miles & Huberman, 1984) of the session, focusing on the actions and interactions of the target child and wrote interpretive memos which reflected the experience of the children in cooperative learning groups.

The Year 2 observations were conducted in March through May in two other schools (5 classrooms) using CIRC. Both authors made observations of the 10 students with disabilities who were enrolled in these classrooms. However, in contrast to the Year 1 observations, average-achieving peers were not targeted during observations conducted in the second year.

Write-ups, Memos, Transcripts, and Coding

The write-ups of observations, interpretive memos, and transcripts of interviews provided a record of student experiences and teachers' perceptions from which we identified patterns of peer and adult interactions. We developed themes by reading write-ups and memos for the paired students (regular and special education), annotating them for examples of participation, adult-child interactions, peer interactions, assistance requested and provided (to and by whom), and progress on assigned tasks. We formed hypotheses about factors that affected special education students' performance in cooperative learning groups, and in the Year 2 investigation, we reexamined the hypotheses developed in the first year. We organized our findings under two broad categories: (1) the nature of special education children's experiences in cooperative groups, (2) classroom factors, and (3) child characteristics associated with more and less successful cooperative learning experiences.

Children's Experiences in Cooperative Learning Groups

To develop a picture of the cooperative learning experiences of our target children we examined our write-ups, paying particular attention to the quantity and quality of help that team members provided during learning activities, and to students' participation in and contributions to group products. We also used this information to classify children as having had either successful or unsuccessful cooperative learning experiences.

Help From Teammates

Here we examined a central assumption of cooperative learning, that children who need help are likely to receive it from their partners and teammates. We reviewed the Year 1 transcripts and constructed a frequency chart to record the instances in each observation where children received help from a peer. We counted as help instances where someone in the student's group

provided assistance which promoted conceptual understanding, persistence on the task, or resources. Examples of help included clarifying directions, reading difficult words aloud, checking spelling, restating a sentence or point during writing tasks, providing written models, showing where answers to questions could be found in text, stating evidence for a definition or concept, judging correctness, editing writing, and inviting or encouraging participation in the task.

Insert Table 1 about here

Table 1 shows the mean frequency of peer help received by individual special education children and their matched, average-achieving peers in the same classrooms for each observed reading session. It shows that for each pair of students, the special education student received more help from teammates than did his or her average achieving peer, lending support to the belief that teammates respond differentially to their peers in cooperative learning groups, according to their perceived relative needs. However, frequency counts of helping episodes failed to capture the nature of peer interactions in these groups and the quality of help that teams provided. Consider the following three episodes:

During our observations in Ellen's third grade classroom, we recorded an average of five instances per session in which her peers helped Ellen. On one occasion following her request to "Spell deaf" (the selection concerned American Sign Language), a peer laboriously finger spelled it; another time in response to Ellen's plea to "wait up," she was handed a student's paper and told to copy the group's work. Although we counted these instances as help because they promoted Ellen's progress on the task, this kind of help did not promote Ellen's participation or contributions to group efforts. We also saw an instance where group members may have deliberately inhibited her participation in activities which should have been cooperative. On this occasion we watched while Ellen's teacher announced the time for partner reading. As other pairs throughout the classroom took turns reading paragraphs, Ellen's partner read aloud for several minutes, until Ellen interrupted as they turned the page, "I'll read this one." As Ellen hesitantly read the first few words, her partner began to anticipate the text, softly saying each word the split second before Ellen could read it. Ellen soon stopped trying to read, and her partner read for the next 14 minutes without further interruption. On several other occasions when Ellen sought assistance during cooperatively structured activities, her requests were ignored or dismissed.

Their teacher, Ms. A. moved among the groups as they read; she glanced at their books to note their progress; she stopped briefly to question a pair who had put their books away and to remind them that partner reading would last another 2 minutes. Her monitoring seemed closely tuned to groups completing the assigned reading and staying with the task for the allotted time. Ms. A rarely stopped to listen to *how* children interacted or helped one another. Simple frequency

counts of helping episodes did not reflect the character of group interaction for this child, nor did it illuminate the quality of the instructional environment which she experienced.

Another classroom displayed a different character of group interaction involving a youngster with a disability. The cooperative assignment began with a pep talk from the partner of the special education student:

Peer: "There's only five questions. Think we can do it, Luke?"

Luke: "Yeah!"

Peer: [reads the assignment they have been given, and asks of Luke's independent work] "Were your predictions correct?"

The two shared their predictions and continued to work together for a few minutes, taking turns with the questions, the peer filling in difficult words and correcting Luke's oral reading errors.

Peer: [reads the next question aloud, starts to give an answer, then stops] "Oh, wait! You're supposed to answer it."

Luke starts to answer, pauses--

Peer: [prompts] --"And?" [then waits for Luke to continue.]

Luke finished with a plausible answer and began to write it down. The partner glanced at Luke's paper when she finished her own, and observed, "That's not how you spell *they*, Luke. Think!" He changed the spelling, and was congratulated: "That's right!"

Over the next few minutes they discussed the story content. The peer acted as a reader, speller, and collaborator on wording, but Luke's suggestions were also incorporated into their products. As they finished, their teacher walked by with a "high five" for them both, remarking to Luke, but in the hearing of several others, "Your spelling looks good."

Both Ellen and Luke received "help" from their peers, but the quality of help differed dramatically for the two. Luke's peer was upbeat and task oriented, conscientiously observant in turn-taking, respectful of Luke's ideas, responsive when Luke encountered problems, and demanding of a quality product. She did not do Luke's work for him, but provided support when he needed it. Her way of interacting with Luke appeared to encourage his participation and effort in their mutual enterprise. In contrast, Ellen's helper tended to isolate her from the group's activities, discourage her participation, and diminish her effort.

Toby, a fifth-grade boy with LD, rarely received productive help from his partners, although he frequently requested it. By this point in our observation, Toby's partner had long since ceased to follow Toby's reading or correct his errors. Toby stopped reading, and announced, "I need help." The partner supplied a word, but it was not the word in the text. Toby used it anyway, and they both laughed. This game escalated until each time Toby needed decoding help, his partner said, "I'm a dumbo," which Toby inserted into the sentence (We did *not* count

these occurrences as help.) Eventually, Toby tired of the game. "I need help," he said again, but from this partner he would not receive it.

Contributions to Group Products

Table 1 also notes the contributions to the group task by the students with disabilities and their average-achieving peers. Contributions included providing information, clarifying questions, elaborating other members' contributions, procedural or conceptual directions, redirecting the group, monitoring available time, providing or organizing materials, and providing help to another group member. Special education students consistently made fewer contributions to the group's work. As we saw with peer helping, however, simple frequency counts do not tell the whole story. In some groups all members contributed something of value, while in others children with disabilities did not contribute, or their attempts to contribute were ignored.

In the sixth grade, Ms. B. stopped to listen to Max's cooperative group as they worked through an assignment on word meanings. Several students proposed ideas on the usage of "maneuvering." Before walking on she remarked, "Max's definition is closer to my understanding." Max continued to add substantively to both the discussion and the final wording of the group's product throughout the session. Even though Max's reading and writing skills were markedly inferior to those of his peers and even though he required and received considerable peer assistance during the associated writing and proofreading task, he had something of value to contribute to the academic task and his group was receptive to his participation. Ms. B.'s passing remark to his group validated Max's contribution and may have served to raise his status in the eyes of his peers (McAuliffe & Dembo, 1994).

In another sixth grade classroom, the special educator joined a group of students as they began to discuss the story questions. She read: "How are the characters all alike?" Harold, a child who read 2 years below grade level, responded, "I'm so tired of that question." He hummed and watched the others work, then wrote a few words on his paper. He left the group to go to the bathroom, and 5 minutes later the special educator also left the class. When he returned, Harold worked on the first task independently, and although his answer was loosely connected to key words, he misinterpreted the task (i.e., Task: Suggest ways to live in the tundra. Response: "because it is so desolit"). As the group continued to work without him, he grew distracted with a red pen and bounced it across his desk on its eraser end. He made a pattern of stars down the side of the page which slowly disappeared. He showed this phenomenon to a boy in the group, who joined enthusiastically in this new enterprise. Although Harold contributed nothing to his group's assignment, Harold and a peer demonstrated cooperation as the two engaged in play—sharing materials and turn-taking (in this case, to create a picture constructed of disappearing ink). Members of this group did not appear to have a stake in each other's learning or products, and this

absence of positive interdependence, coupled with a lack of adult monitoring, allowed Harold to opt out of the group's work.

Some tasks seemed more accessible than others to students with disabilities. Students with learning disabilities may be at a distinct disadvantage for contributing to group products in literacy-dependent tasks, but other kinds of group activities may offer better opportunities. On some days Steve's fourth grade teacher arranged activities to give students with low literacy skills more opportunities to practice cooperation and to demonstrate knowledge in less verbal ways. Steve was on the receiving end of cooperative learning support during the work involving vocabulary and writing, but when students constructed posters integrating their new knowledge on stages of forest growth. Steve assisted other team members with poster layout, and he set the group straight on differences between the bush shapes and life cycle colors of blackberries and raspberries.

During two of our observations in other classrooms, groups constructed drawings or displays illustrating story structures or themes which allowed artistic and spatial organizational skills of students with reading disabilities to be noticed and valued by their peers. Their teachers told us that occasionally they featured tasks specifically to take advantage of the strengths of students with below grade-level academic or English language skills. Other researchers (Cohen, 1986; 1986; McAuliffe & Dembo, 1994) have strongly recommended that teachers focus on "changing student perceptions of the competence of students of lesser status." (McAuliffe & Dembo, 1994, p. 170)

Successes and Failures

Analysis of the write-ups gathered in the first year of our research disclosed substantial variation in the level and quality of special education students' participation in their cooperative learning groups. We sorted cases into successful and unsuccessful participators, using positive and negative examples for the codes *help received*, *contributions offered*, and *progress on assigned tasks*. Our rule was to classify any case that was remotely ambiguous as successful, thus erring in the direction of overestimating the proportion of successful cases. To illustrate, Luke's case was classified as a successful cooperative learning experience because he participated actively and equitably in the partner and group assignments, his partners were helpful and encouraging, and he contributed to the group's products. We also classified Max's experiences in cooperative learning as a success, because on balance he participated in partner and team tasks equitably and to the limits of his ability, and his group supported his efforts. On the other hand, we classified Ellen's experiences in cooperative learning as unsuccessful because her group did not provide a supportive or a satisfactory learning environment, her peers were often dismissive of her requests for help, and they did not provide her an equal opportunity to participate in the learning activities. Likewise, Harold's experience in cooperative learning fell below our standard of success, because he did not participate in group assignments, nor did his peers attempt to bring him on board.

Of the 10 special education children whom we observed participating in cooperative learning groups during the first year of our research, we classified 4 of the cases, or 40%, as successful. These figures do not include the two special education students whom we observed, but whose teachers held them out of cooperative learning activities. Rates for success and unsuccessful participation were similar in the second year of our research. Of the 9 special education students observed in cooperative groups during the second year, we classified 4, or 44%, as having successful cooperative learning experiences. Again, this figure does not include one student in the second year whom we did not see participate in any cooperative or partner groups.

Classroom Factors Associated with More and Less Successful Cooperative Learning Experiences

Analysis of the write-ups of more and less successful students from our first-year observations had suggested several teaching arrangements that appeared to facilitate special education students' participation and to elicit support from other students in the groups. To explore our hypotheses about teaching and classroom factors associated with more and less successful cooperative learning situations, we undertook the second-year observations. Write-ups from the second year were analyzed as before: noting instances of help received and contributions made; classifying cases into successful/unsuccessful participants; replicating categories and factors associated with successful participation in the first year; and seeking exceptions. Combining the data from both years, we identified three ways that teachers shaped cooperative learning in these classrooms.

The classroom practices common to the more effective groups involved the formation of partnerships, teaching cooperative behaviors, and monitoring group functioning during cooperative activities. The descriptions which follow include examples from both years.

Forming Partnerships

For many teachers, finding suitable partners for children with disabilities was among their stiffest challenges, and in this endeavor they were not always successful. "The real top kids won't work with Jennifer and Bryson (two students with LD in one 5th grade classroom). They just won't bear it. They take too long. I've had to put these two together, because no one else will work with them." When the two students with disabilities were paired, however, neither had a source of skilled peer assistance, and they had difficulty maintaining focus on the assigned task.

Other teachers formed cooperative groups that were able to provide effective support to students with disabilities. Luke's teacher told us, "He's working with Ned, now, and he's feeling good about it, and I can see him sort of turning into one of the smart kids." Max's teacher attributed his high level of engagement to the group formation: "I always put him with a group

that's able to help. And I happen to have this year a very unusual class, a very compassionate, caring group. They're not especially high, but they're good. And they're always willing to help." We suspect that this teacher had a large part in creating that compassionate, caring class through her public comments of support directed to individual students and working groups, and her insistence that all members participate during group work.

When teachers did not attend carefully to partner selection the results were sometimes disastrous. Jake, a student with LD, was paired with a boy who argued with the teacher over the pages for partner reading. The teacher cajoled the pair into starting, then listened to the first few exchanges before walking away. Jake read unevenly, hesitating before multi-syllable words, and making long pauses between phrases. His partner played with papers and rocked back in his chair when he should have been following Jake's reading and correcting his errors. When Jake stopped reading, his partner knocked softly on Jake's head, saying, "Jake, anybody in there?"

"I'm reading," Jake answered. "I want to finish."

"Are you done?" the partner queried.

"I've *been* done."

The partner read and Jake watched him, but not the text, and did not begin reading when his turn came around. The partner complained loudly to the teacher, who returned to the group. She moved the partner to another part of the room, and told Jake that tomorrow he would have a new partner. After a moment of sitting idly, Jake joined his partner in the back of the room and the two continued to argue over who would read what, creating frequent disruptions and drawing renewed teacher attention. By the time they finished their reading and returned to the group of four, the other two group members had proceeded through the first few tasks without them. Jake noted their progress and sighed. He pounded the back of the list of questions with his ballpoint pen, making many small perforations. His partner asked the group, "What are we supposed to do, anyway? Aren't we supposed to work as a team?" The other two ignored the partner and Jake, who continued to jam his pen through the paper more vehemently.

Teaching Cooperative Behaviors and an Ethic of Cooperation

Most models of cooperative learning stress the importance of teaching students to work together (Cohen, 1986; Johnson & Johnson, 1986; Slavin, 1990), and all of the teachers reiterated the importance of teaching these behaviors early in the school year. In some classrooms, however, teachers repeatedly reviewed, reinforced, and celebrated cooperation, and a few teachers provided means for groups to monitor their own instances of participation and helping.

Several teachers posted a rule for participation prominently in their classrooms: Everyone contributes. Implicit in the rule was the teacher's expectation that all students are capable of contributing to group products, and that many different contributions are needed to complete tasks

well. Children unused to completing the same quality or quantity of work as their peers may need to be explicitly taught that "Here, in this class, you do everything."

Ms. C. required every team member to participate in answering each story comprehension question either by giving an answer or elaborating on one already given. She assigned one team member responsibility for monitoring individuals' contributions, ensuring that everyone participated. Besides offering answers when it was their turn, team monitors used a yellow Post-it on which they had drawn a grid (team members' names down the side and question numbers across the top) to tally each of their teammates' contributions. Students in Ms. C.'s class accepted the notion of full participation and appeared comfortable with the monitoring process, integrating it into the group activity.

Another teacher did not use student monitors, but employed a turn-taking format to encourage participation. In addition, she was explicit about her expectations for group process and individual products. After passing out the story comprehension questions, Ms. D. called attention to one item which asked students to make an inference about a story character's feelings. She cautioned the class that "Johnny felt good" would not be an acceptable answer to the question, reminding them "because you are almost in the 5th grade" answers should reflect this higher status. She queried the class, "What do you say if your partner gives an incomplete answer?" pointing to the poster in the front of the room entitled "Answer Expander" which listed several suggestions ("Can you say this another way?" "Is there anything you can add to that answer?" "Can you tell me why?").

Monitoring group functioning

Besides teaching students how to cooperate and establishing procedures that supported positive peer involvement and participation, another factor that appeared to affect students' success in cooperative groups was the level of teacher monitoring. Luke's teacher used a combination of strategies to achieve her goal of full participation in cooperative learning activities (e.g., teaching the cooperative behaviors she expects from her students, selecting effective partners, continuous monitoring). She specified how to engage in each phase of CIRC, and taught her class the key components. She told us, "In the beginning of the year we work a lot on [partner reading], they alternate each paragraph, and both eyes are on the page, and if the reader stumbles or has trouble with a word, the listener is supposed to help them. Provide it for them, help them sound it out . . . and I just sort of walk around and monitor." A whispered "discuss" as she passed one group and a glance at a student's work to note progress acted as both a review of her expectations and reinforcement for a group which functioned well. As the group finished the assignment, one student sat back and said, "We're a good group," and a peer replied, "We're awesome."

"How's it going there?" Ms. E. in another classroom asked a group during a rare moment of silence. She leaned over a student's shoulder and said, "This is really well written. I want to

ask you about this." She touched a word with a malformed "r." Tallies during four observations of two groups in her class found her checking in with a brief comment to each group at least twice per session.

We noted that some teachers, as they monitored child and group functioning, made public statements validating the contributions of children with disabilities. This may have functioned to raise these children's status among their peers. In her book, *Designing Groupwork*, Cohen (1986) suggested that assigning competence (i.e., raising the status of those students who are least valued by their classmates) should be a primary aim for teachers as they monitor and interact with student groups. Although Cohen did not address students with disabilities, her ideas seem applicable to several teachers in our study who assigned competence (i.e., made valuing remarks that underscored real accomplishments) to children with disabilities during large-group preparation and during group monitoring. Their comments may have elicited more participation from those students. These teachers' intercession with working groups reinforced norms about equity, participation, helping, and respect.

Missing Elements

Classes where all of the factors worked together to facilitate participation were in the minority, however. Our observations led us to conclude that cooperative learning was not working well for the majority of special education students in our study. In the less successful classrooms we found some of the same practices that we had observed in the more successful classrooms, but at least one of the elements was missing.

Ms. F.'s classroom illustrates a situation where some, but not all three elements were present. She prepared students to work cooperatively, but did not monitor group functioning. One day before groups began working, she asked the class, "How will I know you are working with your partner?" Several students offered suggestions: "We'll be on the same question; We'll be on the same answer; You'll hear us discussing; You'll see stuff written down; You won't see us fighting."

During the next hour, although many of her students exhibited these very behaviors, the two students with learning disabilities in her classroom did not. Cooperation broke down early; the two were off-task and argumentative, and their peers did not attempt to bring them back to the academic task. The teacher had relegated responsibility for monitoring these groups to her teaching assistant, who intervened several times to guide and assist the students with learning disabilities. She did not, however, monitor the functioning of the group; as group interdependence degenerated, she intervened more frequently to support the LD students. Her direct assistance to individuals appeared to condone the group's abdication of responsibility toward assisting and engaging the lower-skilled students. These students might have benefited from different partner selection, or a different cooperative goal structure in which students had a stake in each other's

performance, but these modifications hinge first and foremost on detecting that a problem exists--and detection requires monitoring.

This case illustrates a potential obstacle faced by teachers who employ cooperative learning activities as a means of including children with reading disabilities in regular reading instruction. These children may be unable to perform some of the more challenging tasks without assistance. They may not look to their peers as sources for help unless their teachers specifically teach them to do so, and maintain a low profile during cooperative activities. During some of our observations, adults curtailed team interdependence by joining groups as participants, or offering direct and prolonged assistance to students with disabilities. (We provide another example in a later section.) The adults--usually a teaching assistant or parent volunteer--fell into a pattern of one-to-one tutoring. In their effort to help the struggling reader, they supplied detailed assistance, perpetuating the student's reliance on adults. There is a danger that adults can interject themselves too strongly into a group's task, weakening the group's interdependence and mutual support, and limiting students' opportunities to develop tolerance for learning differences. It is a difficult act to balance a special education student's need for direct teaching, the group's need to accomplish its work, and the class's need to learn cooperation and tolerance.

Child Characteristics Associated with More and Less Successful Cooperative Learning Experiences

Concerns about individual differences, accompanied by deliberate attempts to address them, are at the heart of special education. Children qualify for special education services because they differ from their peers on one or more physical, cognitive, affective, or social traits thought to affect their ability to profit from "typical" education programs. Moreover, though a category like learning disabilities possesses certain defining features, it is so broad a classification that large and important individual differences are present even among children who fall within this single special education category. Individual differences among children with LD may affect their success as participants in cooperative learning activities. For example, specific child characteristics may interact with classroom factors (e.g., teaching practices and group composition) to facilitate or undermine that child's performance in cooperative peer groups. In examining three individual difference variables--reading achievement level, reading fluency, and behavior toward peers--we saw indications that some child characteristics, or combination of characteristics, may play a role in children's participation in peer group learning activities.

Reading Comprehension and Fluency

All but one of the special education students in our sample had been classified as having a learning disability. The preeminent characteristic of children with LD is a significantly lower level of academic achievement than would be expected from their estimated ability (i.e., IQ). Usually, children with LD demonstrate low reading achievement levels relative to their classmates, but some

LD children may exhibit near-average reading achievement. For example, children with an LD and high IQ may demonstrate near-average reading achievement, but still register a significant ability-achievement discrepancy; or students with LD who have responded well to special education treatment may demonstrate average reading achievement; or students who have a learning disability in math but not in reading may demonstrate average reading achievement. Thus, in a group of children with LD it is possible to have a wide range of reading achievement levels. This was the situation in our research sample, where Gates-MacGinitie reading comprehension NCEs ranged from 1 to 50.

How much did the children's reading comprehension levels have to do with their success in cooperative learning? The student with the lowest reading scores (Gates NCE = 1) was one of the students whom teachers held out of cooperative learning groups. The other student held out of cooperative learning (at least during our observations) earned a Gates NCE score of 29, higher than some of the LD students whom teachers placed in cooperative groups. Table 2 shows considerable overlap on Gates-MacGinitie reading comprehension levels between the more and less successful cooperative learning participants; the mean NCE score of the more successful students ($M = 25.0$, $SD = 17.46$) did not differ from that of the less successful and non-participating students ($M = 21.88$, $SD = 15.92$), $t(10) = 0.31$, *ns*. Children's reading comprehension level was not by itself a strong predictor of their success in cooperative groups.

Insert Table 2 about here

A minimal level of fluency may also be important in certain cooperative learning activities like those of CIRC, where group progress is partially dependent on the amount of time it takes for individual students to read a passage. Students' scores on the words read correctly per minute (cpm) measure, reported in Table 2, were well below normative performance for specific grade levels. Norms for this instrument indicate that, when tested at the beginning of the school year, 3rd grade students average 107 cpm, 4th graders 121 cpm, 5th graders 144 cpm, and 6th graders 177 cpm (Jenkins & Jewell, 1993). Z scores for our sample (based on the relevant grade level means and standard deviations) ranged from negative .74 to negative 3.01. The mean z score of the more successful students ($M = 1.63$, $SD = 0.97$) was marginally higher than that of the less successful and non-participating students ($M = 2.46$, $SD = 0.53$), $t(10) = 1.96$, $p = .08$, suggesting that oral reading fluency may contribute to children's success in CIRC.

Social Competence and School Adjustment

Of course, reading ability is not the only child characteristic that is potentially relevant to successful participation in cooperative groups. We also examined our students' scores from the Walker-McConnell SSCSA, which reflect teachers' judgments about their children's social

competence in areas considered important to the development and maintenance of positive peer relationships. The mean SSCSA total standard score for the more successful cooperative learning participants ($M = 93.75$, $SD = 15.97$) did not differ significantly from that of the less successful and non-participating students ($M = 83.5$, $SD = 12.84$), $t(10) = 1.21$, *ns*.

A Risk Index

Using the three child measures (i.e., Gates reading comprehension, cpm fluency, and the Walker-McConnell SSCSA), we created a risk index for each special education student in the Year 1 study (See Table 2). For each measure, children received a risk rating that was a reflection of the number of standard deviation units (*SDs*) that separated a child's score from the normative mean of the specific measure. That is, we assigned a risk rating of 1 to *z* scores between 0 and $-.5$; a risk index of 2 to *z* scores falling between $-.6$ and -1.0 ; a risk index of 3 to *z* scores falling between -1.1 and -1.5 ; and a risk index of 4 to *z* scores beyond -1.5 . Table 2 gives each special education student's risk index, which is the sum of that student's risk ratings from the social competence and two reading measures. Even with the small sample sizes, the mean risk index of the more successful cooperative learning participants ($M = 7.25$, $SD = 0.96$) was significantly lower than that of the less successful and non-participant group ($M = 9.5$, $SD = 1.77$), $t(10) = 2.85$, $p < .02$. With the exception of Marcus and Jake, all of the students whom we had classified either as non-participants or as less successful participants in cooperative learning had a higher risk index than students classified as more successful in cooperative learning. This risk analysis suggests that certain academic and social characteristics of students may play a role in whether students achieve successful participation in cooperative learning activities.

Cooperative Learning as an Inclusion Strategy

How well did cooperative learning work for these special education students? For some students, admirably; for others, not so well; for the group overall, probably less well than most would have liked; we classified fewer than half of the students with disabilities as successful participators in cooperatively-structured reading activities. Some children with disabilities appeared to thrive, others clearly did not. Why weren't more of these children successful in cooperative learning? We noted several factors that seemed to distinguish more and less successful outcomes, including ways that classroom teachers prepared students, organized groups, and monitored performance. Unless teachers succeeded in establishing cooperative norms--an ethic of helping--groups tended to exclude lower-skilled children from participation. Additionally, certain special education practices seemed to interfere with group functioning; when adults attempted to help special education students by inserting themselves into groups, they sometimes curtailed student-to-student interaction; when teachers differentially shortened students' assignments, they

inadvertently induced some children with disabilities to drop out of group learning activities prematurely.

Factors other than teaching practices contributed in both positive and negative ways to special education students' participation in group work. Nearly all of the teachers mentioned that the availability of peers who were willing and suitable partners for students with disabilities was a necessary, though not a sufficient, condition for producing groups that worked. Sometimes teachers simply were unable to identify children who would work well with a particular student, a fact that not only underscores the importance of peers in cooperative learning, but also serves as a reminder of the role played by individual differences.

Special education students' cognitive abilities and academic skill levels place them at risk for immediate difficulties in the classroom and influence their ability to contribute to team assignments. In addition, individual differences in social competence affect students' relationships with and acceptance by classroom peers. Degree of social competence combines with cognitive and academic traits in ways that either threaten positive outcomes or buffer the risks associated with low academic functioning. Research on individuals with learning disabilities who have "beaten the odds" has identified likely protective factors that seem to buttress them against nearly overwhelming adverse personal and environmental conditions that threaten positive developmental outcomes (Keogh & Weisner, 1993; Speckman, Goldberg & Herman, 1993). Those protective factors include the kind of temperament that elicits positive responses from other people, and the ability to recruit others to help them. Children like Luke, whose partner appeared to enjoy helping him, seem to fit this protective temperament profile better than some children like Ellen, who it seemed could not have sought help from her partners.

Attributing successes

Our results yield two interpretations to explain why cooperative learning worked better for some children than for others. On the one hand, individual differences among the special education students were associated with more and less successful cooperative learning experiences. Differences in degree of risk, indexed by a combination of reading comprehension ability, reading fluency, and ratings of social competence, were associated with classification of students as more and less successful in cooperative learning. On the other hand, certain teaching practices along with the composition of the classroom peer group also distinguished between more and less successful cooperative learning participants. We do not have a basis for choosing between the two explanations; both sets of factors represent plausible hypotheses, and both may be influencing cooperative learning outcomes.

The balance among reading activities

We also observed a potentially significant side effect of using cooperative learning as an inclusion strategy for reading instruction. To ensure that slow readers would be ready to participate in the group comprehension activities, teachers sometimes arranged for an adult to read the selection to them, while their peers read silently. To ensure that the partner reading assignment would be completed before comprehension or vocabulary work was to begin, the better reader sometimes usurped the majority of reading time, while the student with reading disabilities looked on. The very procedures which propelled students with reading disabilities toward subsequent group work (e.g., listening to stories instead of reading them) may have robbed them of important opportunities for building reading skills (e.g., word recognition and fluency) which arguably were as important as those developed during the group projects (e.g., story comprehension). Although it is tempting to infer that the academic benefits of cooperative learning documented for typically developing students will be acquired similarly by students with disabilities, these cases suggest that efforts directed toward preparing students with disabilities to participate in group work can affect the balance among reading activities in subtle ways, making it less likely for children with disabilities to achieve the same academic benefits.

Limitations

How generalizable are these findings with respect to classrooms employing cooperative learning as a strategy to include children with mild disabilities in academic instruction? In some regards, teachers in our sample were probably somewhat unrepresentative of teachers using cooperative learning as an inclusion strategy. Our teachers worked within a highly structured reading-language arts instructional framework (CIRC), and they had received an unusually generous amount of training, ongoing technical assistance, and help in materials preparation. Moreover, in the first research school, teachers had considerable experience in implementing CIRC. It is impossible to estimate the generalizability of our findings to other classrooms that use cooperative learning to include special education students in mainstream reading instruction. If representative, our results are sobering because they suggest that advocates of "inclusion through cooperative learning" may have underestimated the difficulty teachers face in creating successful learning experiences for these children.

Implications for instruction

In summary, we wanted to take a closer look at the experiences inside cooperative learning groups of students eligible for special education, because this classroom strategy is often recommended as an effective way of including children with disabilities in general classroom settings. We saw several textbook examples of successful cooperative learning, leading us to conclude that under the right circumstances some special education students can reap important

benefits from this approach. However, our overall findings make us less sanguine, because the cooperative learning experiences were too often unsatisfactory. Success seemed to depend on a complex array of conditions. Academic, behavioral, and attitudinal characteristics of the students with disabilities and their peers appeared to have an important bearing on successful implementation of cooperative learning. The teachers of the children who operated most successfully in groups reinforced participation and contribution to group efforts, and validated the comments of low-skilled children in large- and small-group situations. They established means of ensuring participation and taught groups how to provide the mutual support necessary for sustained effort by students with disabilities. The strategies we observed which may lead to more successful participation for students with disabilities--careful matching of student partners, establishing a cooperative ethic, and monitoring group performance--overlap neatly with those recommended for structuring cooperative learning generally, but as one teacher observed, "With the disabled, it's more difficult."

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Table 1. Mean Frequency of Help and Contributions per Session - Year 1

Students ^a	Mean frequency of help received ^b	Primary source of help ^c	Mean frequency of contributions
Unsuccessful Cooperative Experiences			
<i>Ellen</i>	5	peer	0
Alice	1		5
<i>Marcus</i>	6	adult	0
Dustin	0		4
<i>Julie</i>	15	adult	0
Carol	1		2
<i>Jake</i>	2	peer	1
Larry	1		5
<i>Harold</i>	4	adult	0
Rod	0		6
<i>Toby</i>	3	peer	0
Ned	0		5
Successful Cooperative Experiences			
<i>Theresa</i>	6	peer	2
DJ	3		5
<i>Luke</i>	9	peer	3
John	1		8
<i>Steve</i>	12	peer	2
Alan	1		5
<i>Max</i>	9	peer	6
Mark	1		8

^a Fictitious names; special education students' names are in italics.

^b Mean number of helping instances, per observation, rounded to whole numbers.

^c A minimum of 75% of the help received by the target students came from this source.

Table 2

Reading, Social Behavior, and Overall Risk Index for Year 1 Students

Name	Grade	Gates reading comprehension		Reading fluency		Walker-McConnell SSCSA		Risk index
		NCE	z	CPM	z	Total	z	
Unsuccessful and non participants								
Ricky	3	1	-2.32	8	-2.59	77	-1.53	12
Ellen	3	35	-0.71	9	-2.56	82	-1.20	9
Julie	3	25	-1.19	9	-2.56	90	-0.67	9
Juan	4	29	-0.99	9	-2.61	78	-1.47	9
Marcus	5	11	-1.90	21	-3.00	109	+0.60	8
Jake	5	50	0	92	-1.28	75	-1.67	7
Toby	5	11	-1.85	29	-2.85	90	-0.67	10
Harold	6	13	-1.76	81	-2.24	67	2.20	12
Successful								
Steve	4	10	1.90	48	3.01	102	+0.13	8
Teresa	5	48	-0.09	114	-0.74	78	-1.47	6
Luke	6	13	-1.76	122	-1.28	112	+0.80	7
Max	6	29	-0.99	113	-1.49	83	-1.13	8

Note. NCE = normal curve equivalent; CPM = correct words per minute; SSCSA = Scale of Social Competence and School Adjustment.