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ABSTRACT

This study examined the academic engaged time of six students with low incidence disabilities who were enrolled in general elementary classrooms. These students participated in regular classes for reading or math, and at least one other subject area. The academic engaged time of these students was compared to that of six students without disabilities enrolled in the same classes. The academic engaged time of students without disabilities in inclusive classrooms was further compared with six same-grade peers without disabilities who attended the same school but whose classes did not include children with low incidence disabilities. Three dependent measures were used in the study, including the frequency of observation intervals that students were engaged in academic responding, task management, and competing behaviors as defined within The Code for Instructional Structure and Academic Response-Mainstream Version (MS-CISSAR). Comparisons among groups were completed through the use of nonparametric statistical analyses. The primary results of the study were that: (1) there were no significant differences in the academic responding and task management behaviors of students (with and without disabilities) who were enrolled in general education classes; (2) significant differences were found between these two groups on the frequency of competing behaviors; (3) there were no significant differences between students without disabilities on the measures of academic responding and task management behaviors; and (4) significant differences were found between students without disabilities on the frequency of competing behaviors. Five tables present data and statistical analysis. Contains 16 references. (Author)

The Academic Engaged Time of Students With Low Incidence Disabilities in General Education Classes [1] [2]

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Abstract

This exploratory study examined the academic engaged time of six students with low incidence disabilities enrolled in general elementary classrooms. These students participated in regular classes for reading or math, and at least one other subject area. The academic engaged time of these students was compared to six students without disabilities enrolled in the same classes. The academic engaged time of students without disabilities in inclusive classrooms was further compared with six same-grade peers without disabilities who attended the same school but whose classes did not include children with low incidence disabilities. Three dependent measures were used in the study including the frequency of observation intervals that students were engaged in academic responding, task management, and competing behaviors as defined within The Code for Instructional Structure and Academic Response - Mainstream Version (MS-CISSAR) (Carta, Greenwood, Schulte, Arreaga-Mayer, Terry, 1988). Comparisons among groups were completed through the use of nonparametric statistical analyses. The primary results of the study were that (1) there were no significant differences in the academic responding and task management behaviors of students with and without disabilities enrolled in general education classes, (2) significant differences were found between these two groups on the frequency of competing behaviors, (3) there were no significant differences between students without disabilities on the measures of academic responding and task management behaviors, and (4) significant differences were found between students without disabilities on the frequency of competing behaviors. The implications of the study for future research are discussed.

The Academic Engaged Time of Students With "Low Incidence" Disabilities in General Education Classes

Studies conducted over the last two decades have repeatedly shown that one of the best predictors of student achievement is the opportunity for the learner to be actively engaged in instruction (Brophy & Good, 1986). This body of research has provided a rich descriptive base on the extent to which the typical practices of grade-level and content-area teachers promote student interaction with instructional tasks and materials. Equally important, it has identified marker variables that describe effective instructional environments (Brophy & Good, 1986; Heward, 1994; Rosenshine & Stevens, 1986). This information has provided the framework for the development and validation of numerous curricular, instructional, and classroom organizational strategies that maximize the academic engaged time of students without disabilities, students who are at-risk of school failure, and students with "high incidence" disabilities (Brophy & Good, 1986; Greenwood et al, 1991; Greer, 1994).

In recent years, researchers and advocates have called for the inclusion of children with significant disabilities in general education settings (cf., Meyer, Peck, & Brown, 1991; NASBE, 1995; Sailor, 1991). A growing body of empirical studies have reported that inclusive educational programs produce important educational and social outcomes for this group of students (Halvorsen & Sailor, 1989). Some of these include more successful post-school adjustment, significant gains in communication, social, and adaptive behavior skills, successful

completion of Individualized Education Program (IEP) goals and objectives, increased social interactions with peers without disabilities, and the development of friendships with peers without disabilities (Halvorsen & Sailor, 1989; Giangreco & Putnam, 1991; Snell, 1990). Students without disabilities also appear to benefit from inclusive programs by developing increased sensitivity to and an awareness of the needs of people who are different from themselves, improving their own self-concept and self-identity, and sustained social relationships with peers with disabilities (Giangreco & Putnam, 1991).

Although the body of research documenting the positive effects of inclusive programs has increased rapidly, there are still significant gaps in our understanding of how the curricular, instructional, and classroom organizational strategies typically used in general education classes influences the academic engagement and learning of students with low incidence disabilities (Giangreco & Putnam, 1991; Lipsky & Gartner, 1996). One recent attempt to address these issues was a study carried out by Hollywood and her colleagues (1995). She examined the academic engaged time of six students with mild to profound disabilities who were enrolled full-time in general elementary classes. The academic engagement of these students was compared to six students without disabilities enrolled in the same classes and six students without disabilities enrolled in the same grade but in a different class. The results of this study showed that students with and without disabilities had comparable levels of engagement and the presence of students with disabilities in these classrooms had no effect on the engaged time of students without disabilities. Although this study provided some initial data on the impact of inclusion on the engaged time of students, it did not control for factors such as differences in content areas or the

level of external support provided to students.

The present exploratory study was designed to (1) assess the level of academic engagement demonstrated by students with low incidence disabilities who participated in general education classes for instruction in a traditional academic subject area (i.e., reading or math) and one other content area, (2) determine if the rate of academic engagement of these students was different from their classmates without disabilities, (3) determine if the academic engagement of students without disabilities enrolled in classes that served children with low incidence disabilities was different from same grade peers who had no students with low incidence disabilities in their classes, and (4) evaluate the effect of the use of paraprofessional staff on the academic engaged time of students with low incidence disabilities in general education classes. The research design used in this investigation was based on the study reported by Hollywood and her colleagues. However, attempts were made to control for potential differences in academic engaged time that might stem from participation in different content area classes.

Method

Participants

Participants in the study included six students with low incidence disabilities (experimental group) who participated in general elementary classes for instruction in reading or math, and at least one other content-area (e.g., social studies, science, physical education, music). Six students without disabilities enrolled in the same general education class served as a control group and six students without disabilities enrolled in the same grade but different classes in the

school served as a contrast group.

A potential participant pool of students with low incidence disabilities was identified by the special education teachers in each of the schools that had agreed to take part in the study. This pool included all students in the school who were (1) classified as having moderate to profound mental retardation or multiple disabilities and (2) included in the general education class for reading or math, and at least one other subject area. Once this pool of students was identified, the special education teachers were asked to distribute permission forms to the parents of these students. Students for the experimental group were selected randomly from the group whose parents had approved their participation in the study. Table 1 provides basic demographic information about the students selected for participation in the study.

Insert Table 1 about here

In the general education class, Alicia participated in the regular curriculum with her peers. She was provided no unique curriculum or instructional modifications to take part in the lessons provided by her teacher. She did not receive any additional support from special education staff while in the general education class. Alicia was also pulled out of the regular classroom to receive some one-on-one and small group instruction on goals and objectives included in her Individualized Education Program (IEP).

Alexander's participation in the general education class was supported through the use individualized instructional activities during peer partner projects and parallel instructional activities developed by the general education teacher. Alexander received no direct support from

special education staff while in his general education classes. Alexander also received one-on-one and small group instruction on some of his IEP goals and objectives in a separate resource classroom at various times through out the day.

Jason has cerebral palsy that severely limits his communication and mobility. He participated full-time in the general education classroom with the support of a one-on-one teaching assistant. He uses a Mackaw and the Words Plus Message Mate to interact with peers and staff. Students in Jason's class recorded selected words to be used as the voice output for his communication devices. The teaching assistant helped him to complete academic (e.g., scan his number line) or communication (e.g., locate word or phrases) tasks. She also provided hand over hand assistance or other physical support necessary to allow Jason to participate in classroom activities. She promoted interactions between Jason and his peers by providing them with directions about how to use his communication devices and praising them when they initiated social interactions. Jason was also provided curricular and instructional adaptations to support his participation in regular instructional lessons. Examples of these adaptations included reducing the number of problems he was required to complete during a lesson or having him point to a word from a vocabulary list rather than write it.

Sara participated in the general education class five hours per day. The remainder of her instructional day was spent in a resource program in which she received one-on-one and small group instruction on selected IEP goals. Sara's general education teacher used cooperative learning groups as an integral part of her teaching practice. Sara was fully included in these groups for all instruction. While Sara's teacher provided her with some direct assistance, the

majority of the teacher's support focused on teaching Sara's team mates to promote her participation in instructional activities. Sara received no direct assistance from special education staff while she was in her general education class.

John is a fifth grader who is identified as having autism. He demonstrates a number of behaviors including pushing and pulling his ears, echolalia, and finger biting. John had a history of low rate behaviors such as head banging and property destruction. He participates full time in the general education classroom and is provided with one-on-one support from a teaching assistant. John's assistant helped the classroom teacher to integrate his IEP goals into the on-going routines and activities of the classroom. She also provided John with direct instruction on targeted skills, and demonstrated instructional and behavioral support strategies for his peers. Other supports included curriculum adaptations such as modifying the task demands for John and the use of parallel instructional activities.

Charles participated full time in the regular class and was supported by a one-on-one teaching assistant. The primary role of the teaching assistant was to integrate his IEP goals into the regular curriculum and instructional activities, provide direct instruction as necessary to meet his IEP goals, and model instructional and behavioral support strategies for his peers. His general education classroom teacher used a number of curriculum and instructional adaptations to support his participation in the class including reducing the number of problems he was assigned, changing the required response topographies (e.g., using a calculator during math or taped books during silent reading), and parallel instructional activities.

Students without disabilities who participated as members of the control group were

selected through a three step process. First, the general education teachers in the participating classrooms identified all students in the class who had no identified disabilities, were functioning at grade level in all content-areas, demonstrated no pervasive problem behaviors, and matched the gender of the targeted student with disabilities. Next, one student from this group was selected at random. Finally, forms granting permission for the student to participate in the study were sent home to his or her parents/guardian. This process was repeated until a student was identified for participation in the study.

Students included in the contrast group were selected using the same procedure. The class sizes of students in the contrast group were similar to that of the students in the experimental and control groups and ranged from 25 to 38 children.

Settings

Students participating in the study attended four elementary schools. These schools were the neighborhood schools for the students with disabilities. All of the schools had participated in state and/or federal outreach projects administered by the senior author or by staff from the State Office of Education. The teachers and administrators in each building had made a strong commitment to the inclusion of all children with disabilities in the general education program. In addition, staff in these schools had received training and technical assistance on strategies for supporting the participation of children with low incidence disabilities in the regular curriculum. All of the schools were located in suburban and middle class neighborhoods.

Measurement System and Equipment

The Code for Instructional Structure and Academic Response - Mainstream Version (MS-

CISSAR) (Carta, Greenwood, Schulte, Arreaga-Mayer, Terry, 1988) was used to collect data on three categories of student behavior that described their overall engagement in the instructional activities of the classroom including "academic responding," "task management," and "competing behaviors." The MS-CISSAR is also designed to track variables organized within 13 subcategories in the areas of student behavior, teacher behavior, and classroom ecology. This instrument has undergone extensive validation and has been used to address a number of research questions focusing on the academic performance of students who are at-risk of school failure (Greenwood, Carta, & Atwater, 1991).

Data were collected through the use of IBM/PC compatible lap top computers. Data collection was supported by specialized computer software developed for the MS-CISSAR (Greenwood, Carta, Kamps, & Delquardi, 1993). The software is designed to support data entry, reliability comparisons, and data summary and analysis.

Design

A quasi-experimental between-groups design was used to assess the differences in the level of the academic engagement among students in each group. The three dependent measures used in the study included the frequency of observation intervals that students were engaged in academic tasks (academic responding), the frequency of observation intervals that students were engaged in managing instructional tasks and materials (task management), and the frequency of observation intervals that students were engaged in behaviors that would interfere with academic responding or task management tasks (competing behaviors). Group membership was defined as the primary independent variable. The experimental group was divided into two groups for

additional post-hoc analyses including students with disabilities who received on-going paraprofessional support from teaching assistants and those who did not.

For the purposes of this study, academic engaged time was defined as the proportion of intervals during observations that students were engaged in "academic responding" and "task management" activities as delineated by the MS-CISSARS. Greenwood and his colleagues (1994) describe academic responses as those student behaviors made directly in response to academic tasks, commands, or prompts. The specific student behaviors included in this subcategory are (a) writing, (b) manipulating objects that are relevant to completion of an academic task such as a computer, (c) reading aloud, (d) reading silently, and (e) engaging in verbal behaviors related to the academic task such as talking with a peer about subject matter as part of a collaborative learning group.

Task management behaviors are those behaviors that enable the student to engage in academic tasks. These behaviors include (a) raising a hand to request help or in response to a teacher question, (b) playing with objects or peers as approved by the teacher such as talking with a friend after an assignment has been completed, (c) handling, looking for, or using materials that are essential to the completion of the academic tasks such as looking through the pages of a dictionary, (d) moving from one area of the classroom to another such as during transition between one academic task and another, (e) talking with a peer in order to solicit assistance or clarification on the assigned or upcoming academic tasks such as asking for assistance with a problem or what books to get out, and (f) attending to (looking at) a peer, teacher, or media during an academic task.

The final dependent measure was competing behaviors. Greenwood and his colleagues define competing behaviors as those responses that are unacceptable because they are against commonly accepted social conventions, classroom rules, or teacher directions. The behaviors in this subcategory of the MS-CISSARS include (a) aggression toward others, (b) disrupting the academic task, (c) talking with peers or the teacher about subjects not directly related to the academic task, (d) looking around the classroom and not attending to the academic task, (e) noncompliance with teacher directions or commands, (f) self-stimulatory behavior, and (g) self-abuse.

Procedure

Observations were conducted during either reading or math instruction, and at least one other content-area class (i.e., social studies, science, physical education, music, art) in each student's general education classroom. Researchers collaborated with each student's general and special education teachers to identify the specific classes that were observed. Each triad of students (experimental, control, and contrast) was observed in the same content-area classes across all observations. That is, if the student with disabilities was observed during math and physical education classes, then the control and contrast students were also observed in these classes. The student with disabilities and the control student in the same class were always observed during the same lesson. To the extent possible, observations of students in the contrast group occurred on the same day but always occurred within one calendar week of the observation of the students in the experimental and control groups.

Observations were conducted across five consecutive months. They were scheduled

weekly for a minimum of 20 minutes with each subject. However, the actual number of observations conducted with students varied due to student and teacher absences, changes in school schedules, and so on. The number of observations for students in the experimental, control, and contrast groups ranged from 15 to 22.

During observations, one of the authors would observe the student with disabilities and another would observe his/her classmate. Prior to the observation, the researchers met with the classroom teacher to gather information about the specific instructional tasks to be completed by students during the lesson and the materials that they would use to complete assigned tasks. At the beginning of the lesson, the researchers would position themselves in a discrete location of the classroom but close enough to observe the identified students. The observers recorded data every 20 seconds. At the end of each interval the observers, would look at the events occurring in the classroom, record the information on the lap top computer, then rest briefly before the next interval began. Intervals were sequenced to gather data on ecological, teacher, and student events within a one minute period.

Observations of students included in the contrast group were conducted by one of the authors. The procedures used to carry out these observations were identical to those used for the experimental and control groups.

Data Analysis

Data analysis was conducted on 15 observations. Only observations in which data were available for all three students were used in the analysis. Comparisons between students in the experimental group and the control group were carried out through a Wilcoxon Matched-Pairs

test in SPSS for Windows. Comparisons between students in the control and contrast groups were carried out through a Mann-Whitney U Test in SPSS for Windows. An alpha level of $p \leq .05$ was established as the criterion for determining the occurrence of significant differences.

Reliability

Prior to the initiation of the study, three of the authors were trained to implement the MS-CISSARS. Training was carried out using video tapes of children with low incidence disabilities enrolled in inclusive classrooms but who were not participating in the study. Training continued until all of the observers met a criterion of 90% agreement across observation intervals for two consecutive sessions. Interrater reliability was calculated by dividing the number of agreements by interval by the number of agreements plus disagreements multiplied by 100.

Ten reliability probes were conducted during the course of the study. During these probes, two of the authors independently recorded data with one student during a single lesson. Interrater reliability ranged from 84% to 96% with an average of 90% across all probes.

Results

Table 2 summarizes the average percentage of intervals in which students in each group engaged in academic responding, task management, or engaged in competing behaviors. On average the students in the experimental group were engaged in academic responding during 32.2% of observation intervals (Standard Deviation = 6.6%). Students in the control group were engaged in academic responses an average of 37% (SD = 9.9%). Academic responding for students in the contrast group ranged averaged 40.2% (SD = 6.4%).

Insert Table 2 about here

Students in the experimental group, control, and contrast group were engaged in task management behaviors an average of 46.3% (SD = 12.7%), 47.3% (SD = 12.1%), and 47.8% (SD = 3.5%) of the observational intervals respectively. Students in the experimental group engaged in competing behaviors an average of 21.5% of the observation intervals (SD = 14.5%). Students in the control group engaged in competing behaviors an average of 15.6% of the observation intervals (SD = 12.1%). Competing behaviors for the contrast group averaged of 10.4% (SD = 3.5%).

Table 3 summarizes the results of the Wilcoxon Matched Pairs Test for students in the experimental and control groups. No statistically significant differences were found between these two groups on academic responding and task management behaviors. However, statistically significant differences were found between students on competing behavior. These results show that while the average academic engagement of students with disabilities was comparable to their peers without disabilities they also had higher rates of competing behaviors.

Insert Table 3 about here

Table 5 presents the results of the Mann-Whitney U Test for Independent Samples comparing the rates of academic responding, task management, and competing behaviors for the control group with the contrast group on each of the dependent variables. The analyses revealed that there were no significant differences between these groups on academic responding and task

management behaviors. Significant differences were found between students in the control and contrast groups on the frequency of competing responses during observation sessions. These data suggest that the participation of children with low incidence disabilities in the instructional activities of general education classes did not negatively affect the academic engagement of students without disabilities. Students without disabilities enrolled in inclusive classes engaged in higher rates of competing behaviors than their peers in classes that did not serve students with low incidence disabilities.

Insert Table 4 about here

Finally, Table 5 summarizes the results of the Mann-Whitney U Test comparing academic responding, task management, and competing behaviors of students with disabilities who received support from a paraprofessional staff member and those who did not. The analysis found that there were no statistically significant differences between these two groups on any of the variables. These findings raise questions about the direct or unique effect that paraprofessional support had on the active participation of students in this study in the instructional activities of their general education classes.

Insert Table 5 about here

Discussion

This exploratory study was designed to examined differences in the level of academic

engagement of students with and without disabilities who were enrolled in general elementary classes. The data analysis produced a number of interesting findings. Perhaps the most important was that these data clearly show that students with low incidence disabilities were actively engaged in instruction. When academic responding and task management were combined, the average rate of engagement across all students and observations was 78.5%. Furthermore, statistical analysis found no significant differences between the frequency of academic responding and task management behaviors for students with disabilities and their classmates without disabilities. The combination of academic responding and task management behaviors for this group of students with disabilities was similar to that reported by Hollywood and her colleagues (1995), and was at or above the average rates of academic engagement reported for students without disabilities in other studies (Good & Brophy, 1986). This study provides additional evidence that curriculum, instruction, and personal supports can be organized in ways to provide students with low incidence disabilities with meaningful learning opportunities in general education classes.

While statistical analyses found no differences between students with disabilities and their peers in their rates of academic responding and task management behaviors, significant differences were found in their rates of competing behavior. Further analysis of the problem behavior emitted by students with disabilities showed that the topographies of these competing responses were not noticeably different from those of their classmates; they simply engaged in them more frequently. The two most common categories of competing behaviors for both groups were "talking inappropriately" to peers and "looking around." Although differences in

the rates of competing were statistically significant for these two groups, a closer examination of the data raises questions about whether these differences represent meaningful discrepancies in performance.

More than 50% of the competing responses demonstrated by the experimental group are attributable to John and Charles. In spite of this, the differences between these students and their peers without disabilities were relatively small. Across all observations, both John and Charles had only 40 more incidents of competing behaviors than the control student. That means that on average they engaged in only 2.6 more competing behaviors than their classmates during each 20 minute observation. The other students in the experimental group averaged only .66 more competing behaviors per observation than their peers without disabilities. Furthermore, anecdotal reports from the observers suggest that the rates of competing responses for all of the students with disabilities were well within the range of competing behaviors generally demonstrated by students without disabilities in each class. It is common to hear teachers and administrators to express concerns that inclusion will not work because children with low incidence disabilities engage in behaviors that would disrupt the on-going instructional activities of the classroom. The findings of this study appear to challenge this assumption. The overall frequency and intensity of the competing behaviors emitted by students with disabilities in this study did not seem to be qualitatively different from the class as a whole.

The post-hoc analysis of the competing behaviors of students with and without disabilities also suggested that the relative rates of competing behavior for students covaried. For example, across all observations Alexander engaged in competing responses a total of 58

times. His classmate Donald, engaged in competing responses 34 times. Sara and Mary, her classmate without disabilities, engaged in competing responses a total of 47 and 38 times respectively. To determine the relative strength of this relationship, a Spearman Rank Order Correlation Coefficient was calculated on the total frequency of competing responses across observations for each dyad. The analysis showed that the rates of competing responses for students with and without disabilities in each class were highly correlated ($r = .98$; $p \leq .001$). Similar results were found when academic responding ($r = .89$; $p \leq .05$) and task management ($r = .91$; $p \leq .05$) were correlated. Although direct cause and effect relationships cannot be assumed from these data, they do suggest that the ecobehavioral context of different classrooms had comparable effects on the rates of academic responding, task management, and completing responses demonstrated by students with and without disabilities. One implication of these findings is that the long-term success of students with low incidence disabilities in inclusive classrooms cannot be assured by simply developing individualized support strategies for students. Successful inclusion will also require consideration of the overall structure of the curriculum, instruction, and classroom organization provided to all students.

Another important finding of this study is that there was no difference between the rates of academic responding and task management behaviors for students without disabilities in inclusive and noninclusive classrooms. Significant differences were found between students in the control and contrast groups on the frequency of competing behaviors. Similar to the students in the inclusive classes, the most common categories of competing behaviors for students in the contrast group were "talking inappropriately" and "looking around." While there were

statistically significant differences between these two groups on this dependent variable, a closer examination of the frequencies of competing behaviors for students in the control and contrast also raises questions about the importance of this finding. Students in the control group emitted an average of 4.2 competing behaviors per observation session. In comparison, students in the contrast group had an average of 3.0 behaviors or a difference of a little more than one behavior per session. Given these findings, it is not clear that the overall academic engagement of students in inclusive classrooms was dramatically different from their peers in noninclusive classrooms. Taken together, these results challenge the view that the participation of children with low incidence disabilities in general education classes will negatively impact learning opportunities of children without disabilities. In fact, given the reported positive effects of inclusion on the attitudes and self-concept of students without disabilities and the development of social relationships with peers with disabilities (Giangreco & Putnam, 1991), such programs may enhance the quality of the educational programs provided to students without disabilities.

The final issue examined in this study was the effect that the presence of special education paraprofessionals had on the rates of academic responding, task management, and competing responses of students with disabilities. To address this issue the authors divided the experimental group into two groups of three students. The first group of students received support from a special education paraprofessional who was present in the classroom for all instructional activities. The second group received support only from peers in the class and the general education teacher. There were no significant differences in the rates of academic responding, task management, and competing behaviors between students who received support

from paraprofessional staff and those who did not. It would be hasty to conclude from these findings that increased support from paid staff is never necessary to ensure the success of students with low incidence disabilities in regular classrooms. However, they do raise interesting questions about the unique impact that the presence of paraprofessional staff has on the academic engaged time of students with disabilities in these settings. Given the other results of this study, we suspect that there are strong interactions between the presence or absence of paid staff and other ecobehavioral characteristics of general education classrooms. As such, the question for researchers is not whether paid staff are necessary to ensure successful inclusion but under what conditions. Teachers and administrators need guidelines in deciding when paraprofessional staff support is necessary to provide an adequate educational program to students and in defining the role of these individuals within the general education classroom.

The results of this study must be interpreted cautiously. A number of factors limit the extent to which these findings can be generalized to other students, teachers, and schools. First, the small numbers of students participating in the study limits the conclusions that may be drawn about how inclusion may affect the academic engagement of other students with and without disabilities. Second, the students with disabilities who participated in this study were served by teachers who had made a strong commitment to inclusion. Furthermore, the teachers and administrators in all of the schools participating in the study had received training and technical assistance on strategies for supporting students with disabilities in general education classrooms. Thus, it is unclear how students with disabilities might fare in classrooms and schools in which staff were not committed, and had received no training or technical assistance. Finally, while

attempts were made to control for the potential effects of different content areas on academic engaged time, there was substantial variation in the types of instructional activities and methods to which students were exposed. For example, some of the teachers used cooperative learning while others did not. It is unknown what effect these differences may have had on the level of academic responding, task management, and competing behaviors demonstrated by students.

In spite of these limitations, this study suggests that students with low incidence disabilities have rates of academic engagement comparable to that of their peers without disabilities. Further, the inclusion of children with low incidence disabilities in general education classes did not appear to affect the learning opportunities provided to students without disabilities. The results of post-hoc analyses suggest that the level of academic engagement of students with and without disabilities appears to be greatly influenced by the ecobehavioral context of the general education classroom. These findings raise interesting questions about the strategies that professionals use to support the participation of students in general education classes. To date, most of the interventions described in the literature have been directed at the student with disabilities and are designed to provide them with modified or alternate curriculum and instruction, or increased personal support (Giangreco & Putnam, 1991). This study suggests that the effectiveness of this approach will be mediated by the teacher's instructional behavior and the overall organization of the classroom. Future efforts to include students with low incidence disabilities in general classrooms may need to take a broader "systems" approach that includes strategies for improving the overall effectiveness of the instruction provided to all students in the class.

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Table 1
Demographics of Students in the Experimental Group

Student	Gender	Grade	Primary Classification	IQ	Time In Regular Class	Number of Students in Class
Alicia	Female	1	Mental Retardation	48	4.5 hrs/day	28
Alexander	Male	4	Mental Retardation	40	3.5 hrs/day	28
Jason	Male	2	Physically Disabled	90	6 hrs/day	26
Sara	Female	4	Multiply Disabled	71	5 hrs/day	40
John	Male	5	Autism	Not Testable	6.5 hrs/day	31
Charles	Male	3	Mental Retardation	39	6.5 hrs/day	29

Table 2
Average Percent of Intervals on Dependent Variables by Group

Group	Academic Responding		Task Management		Competing Behaviors	
	Mean	SD	Mean	SD	Mean	SD
Experimental	32.2	6.6	46.3	12.7	21.5	14.5
Control	37.1	9.9	47.3	11.4	15.6	12.1
Contrast	40.2	6.4	47.8	6.1	12.4	3.5

Table 3
Wilcoxon Matched Pairs Test for the Experimental and Control Groups

Dependent Variable	z Score	Alpha Level
Academic Responding	1.4	.14
Task Management	.21	.83
Competing Responses	2.3	.02

Table 4
Mann-Whitney U Tests for the Control and Contrast Groups

Dependent Variable	z Score	Alpha Level
Academic Responding	.77	.44
Task Management	.82	.82
Competing Responses	2.1	.03

Table 5

Mann-Whitney U Results Between Students With and Without Paraprofessional Support

Dependent Variable	z Score	Alpha Level
Academic Responding	.65	.51
Task Management	1.1	.27
Competing Responses	.65	.51